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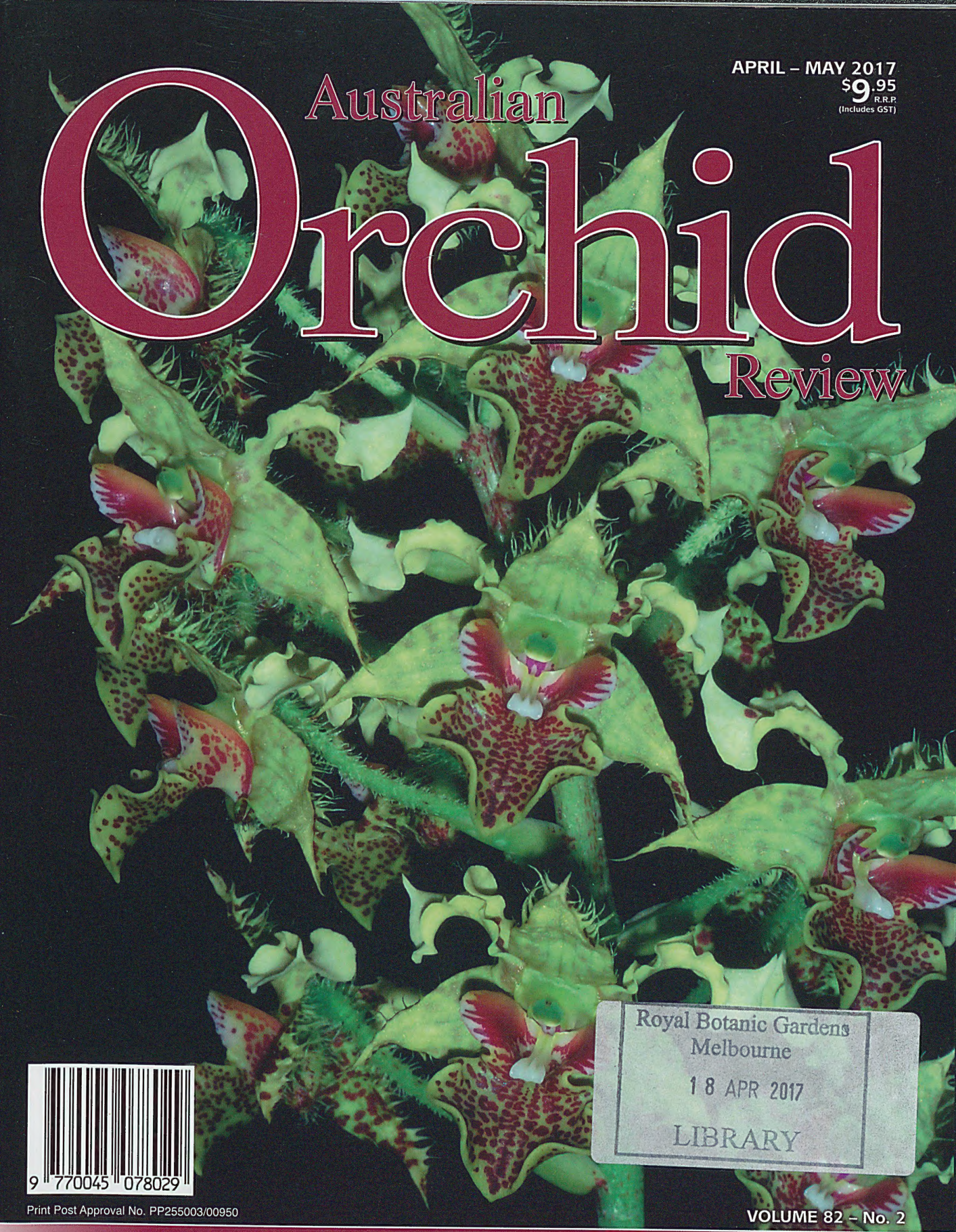

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From the Editor's Desk

The feature article this issue is on a specific group of Section *Latouria* Dendrobiums from Papua New Guinea. Well known and respected (both also being recipients of the Australian Orchid Foundation's "Award of Honour") Mark Clements and Phil Spence have combined on this article sorting out some species confused under the name of *Dendrobium polysema*. There are actually five different species involved in this group of "Dendrobiums" which will be transferred in the near future, with supporting scientific studies, to the genus *Sayeria*.

Phil Spence was the deserved 2016 recipient of the Australian Orchid Foundations' "Award of Honour". Phil was one of the true innovators in Australian native orchid hybrids many decades before these became fashionable and popular. He was able to combine many distantly related plants within a range of genera, but especially *Dendrobium*, in the broad sense. He was also one of the pioneer hybridists with many new and unusual species from Papua New Guinea. A country he knows in depth and has visited countless times over many decades. Phil also introduced a suite of new orchid species into cultivation, a few of the most famous being *Dockrillia fuliginosa*, *Dendrobium alexandrae* and *Dendrobium convolutum*. Congratulations Phil, and nice to see you getting this recognition.

Scott Barrie discusses some of his thoughts regarding the explosion of interest and quality in modern *Sarcochilus* hybrids, and notes parallels in the development in this genus, compared to the path with *Cymbidium* hybrids. Randall Robinson has provided arguably the best group photograph I have seen yet of modern *Sarcochilus* hybrids, highlighting the true colour range now available. I am told Randall literally took hours selecting the plants at Barrita Orchids to go into this wonderful display.

As always, we have a comprehensive range of new native orchids in this issue, more than any other periodical.

I was very saddened to hear of the recent passing of Lloyd Woolnough on 21 February 2017, at the grand age of 90. Lloyd was a champion grower and intelligent breeder of his beloved "Softcane" Dendrobiums. The "real Dendrobiums" he called them! He made and registered many quality hybrids in a wide range of colours. The flower form (especially in regards to the labellum – avoid that "pinching" at all costs) and floriferousness were paramount qualities he looked for in his hybrids. He was always encouraging with anyone that took an interest in his orchids. Ill health was to hamper Lloyd in his final few years. Lloyd is survived by his orchid and plant-growing wife Faye and extended family, to which we pass on our sincere condolences.

One of the new features of the Australian Orchid Foundation website is the inclusion of the "Memorial Register". The Memorial Orchid Garden is a register to pay tribute to those orchid friends who have passed away. Upon a donation of $100, a written tribute is entered in the register, including a photograph, which can now be read by everyone. It is a meaningful way to record the orchid activities of friends and society members who have passed away.

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David Banks
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Cover Shot

Dendrobium pulchrum is a showy species from Papua New Guinea that has long been confused with *Dendrobium polysema*. Grown by Jon Cara from ANOS Kabi Group (Qld.) from a plant ex collection of Geoff Stocker.
Photo: David P. Banks.

Re-interpretation of the *Dendrobium polysema* Schltr. complex (Orchidaceae: Dendrobieae)

by Mark A. Clements and Phil. Spence

Abstract

A reappraisal of the *Dendrobium polysema* Schtlr. complex resulted in the re-interpretation of taxa previously included in that concept. *Dendrobium pulchrum* Schltr. and *Dendrobium stenopterum* (Rchb.f.) Chadim are reinstatement, *Dendrobium pallidum* (Chadim) M.A.Clem. et P.J.Spence is elevated to specific rank and *Dendrobium pacificum* from Vanuatu and the Solomon Islands is described as new and illustrated.

Introduction

Dendrobium Sw. Section *Latouria* (Blume) Miq. as defined by Schlechter (1912) is a popular, often very showy group of orchids centred in New Guinea and considered to contain around 50 to 70 species. Cribb (1983) undertook a revision of section *Latouria* principally to determine the status of species in the group and to provide clarity to the Royal Horticultural Society to assist with the registration of artificial hybrids. The revisionary paper was the result of years of work locating and studying types and other herbarium collections, undertaking field work throughout the region and study of many species in cultivation. It also involved the publication of preliminary papers clarifying interpretations, illustrating and describing new species within this horticulturally popular group of orchids (Cribb 1980; 1981). Cribb's 1983 account of section *Latouria* serves as the reference for the taxon. Various authors have subsequently added to our knowledge of the group with the recognition and description of new species from the Philippines, *D. setigerum* M.A.Clem. (1999), Indonesia, Papua Province (Irian Jaya), *D. shiraishii* T.Yukawa and M.Nishida (1992), *D. sluemeri* Ormerod (2003) and Papua New Guinea, *D. crassilabium* P.J.Spence, *D. eymanum* Ormerod, *D. flebiliflorum* Ormerod, *D. spenceanum* Ormerod and *D. spinuliferum* Ormerod (2005).

One perplexing species in the section is *D. polysema* Schltr. This species was described by Rudolf Schlechter (1905) from material he collected in the Bismarck Ranges in Kaiser Wilhelm's Land, now part of Papua New Guinea, during his first field trip to the island. Unfortunately the type specimen was destroyed in the Berlin herbarium during the Second World War but fortunately Schlechter's detailed description accompanied by a detailed illustration of a dissected flower facilitates the interpretation of this species. In his revision of Section *Latouria*, Cribb (1982; 1983) after consultation with Howcroft and Reeve, both of whom lived in Papua New Guinea and were familiar with this group of orchids, reduced another of Schlechter's species *D. pulchrum* Schltr. to a synonym of *D. polysema* suggesting there was no obvious discontinuity between the two species. Cribb interpreted the small flowered form as representative of typical *D. polysema*, as illustrated in *Curtis's Botanical Magazine*, t. 796 (1980) and the large flowered form equivalent to plants described as *D. pulchrum* and *D. polysema* var. *pallidum* Chatham.

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Another small flowered taxon *D. macrophyllum* var. *stenopterum* Rchb.f. (= *D. stenopterum* (Rchb.f.) Chadim) was also included and all three names were reduced to synonomy in the treatment of *D. polysema* (Cribb 1983). At the time *D. polysema* was considered to be confined to eastern Papua New Guinea but soon thereafter the concept was extended to include a small-flowered form from Vanuatu (Lewis and Cribb 1989), the Solomon Islands and Bougainville (Lewis and Cribb 1991).

The inclusion of *D. pulchrum* within the 1983 concept of *D. polysema* was however rather puzzling given Schlechter's comments when describing *D. pulchrum*. Schlechter was quite clear about the distinctiveness of *D. pulchrum*, noting that he could not relate this magnificent, eye-catching large and colourful flowered species, with triangular upright lateral lobes of the labellum, and large mid-lobe with incurved margins closely to any other. He also provided illustrations of the dissected flowers of both species adjacent to one another on the same plate. Careful analysis of each description and these two illustrations, both of which depicted seemingly morphologically distinct species, rendered it difficult to support this new interpretation of *D. polysema* although at the time no new data was available to help resolve this dilemma.

Dendrobium polysema (MAC)

Soon after fresh material *D. polysema* and related species were obtained firstly in Vanuatu and then from Papua New Guinea during the Schlechter-Latuerbach Commemorative Expedition (Clements and Ziesing 1990). At about the same time many of the Type specimens of species described by Fritz Kraenzlin were released from their hiding place in East Germany and returned to the Hamburg Herbarium where they were available for study. These Type specimens had by many botanists been believed lost having presumptively been destroyed during the Second World War. Kraenzlin described many orchids but most of the descriptions were too vague or inadequate for most botanists to confidently interpret the identity of the taxa involved. The reappearance and ready access to the Kraenzlin herbarium was a huge relief to many botanists as it allowed reassessment of the identity of many of his species. These two processes along with study of other herbarium and living plant collections facilitated a reappraisal of species within Sect. *Latouria*. This process also led to the interpretation that as yet undescribed taxa existed within Sect. *Latouria*.

After comparative study of available material including extant Types, we conclude that all of the taxa interpreted and reduced to synonomy under Cribb's (1983) concept of *D. polysema* warranted further study. The main purpose of this paper is to enunciate the results of that study and to provide a basis for the correct application of names for botanist and horticulturalist alike.

Materials and methods

This research forms part of a broader study being undertaken by the senior author on the Dendrobieae (Clements and Jones 2002; Clements 2003; 2006) during which specimens and particularly the Type collections have been located, studies and photographed in many herbaria particularly in Europe. Additionally, careful study of freshly collected plants and many in cultivation in Australia was undertaken during the course of this research. More recently, images of plants of many orchids, including those from the study group, have also appeared on the Internet and some of these have proved useful.

The preparation of floral dissection cards, a system developed by David Jones, proved particularly helpful in this research. Floral dissection cards are typically prepared using fresh flowers; the dissected parts stuck down or held down by Magic Tape on post card size (15 x 10 cm) pieces of archival herbarium cardboard sheet. Left at room temperature under dry conditions, the fresh plant tissue dries slowly through the cardboard base maintaining much of the flowers original morphology and colour. Collections prepared using this method are easily stored in a two drawer filing cabinet facilitating detailed study and comparative analysis of critical floral characters between collections. Floral dissection cards prepared in the field also can be particularly useful and serve as a mini-travelling herbarium to facilitate initial comparison and assessment of fresh collections. It is also another means of preserving details of flowers in the field. The study group has very fleshy flowers making the preparation of floral dissection cards problematic. Specifically, the labellum with its large central callus and thick traverse laminar, plus erect side lobes make for particularly difficult specimen preparation which is often overcome by dissection down the middle of the organ. Notwithstanding these minor difficulties, study of collections prepared using this methodology were very informative facilitating the comparative measurement of each segment, as well as revealing the true morphological form of structures such as the labellum side and midlobe that are often obscured in otherwise pressed herbarium specimens or not easily comparable between fresh flowering plants.

Study of plants in the field proved essential as it does with almost all botanical research. Details of habitat, biology and location of plants for each species provided critical data throughout the course of this study.

Discussion

Use of the term "*Dendrobium polysema* complex" is really an artificial concept used more for convenience rather than representing a definitive taxonomic group. Other species such as *D. finisterrae* Schltr., *D. forbesii* Ridl. and *D. macrophyllum* A.Rich. could equally be included. Instead we chose to concentrate on the species that have historically been included within various authors' concept of *D. polysema* (Chadham 1964, 1972; Cribb 1982, 1983; Lewis and Cribb 1989, 1991; Wood 2006) and account for each. Indeed all these authors contributed greatly to our understanding of the species involved whilst also highlighting possible areas in need of research.

Molecular analysis has recently been used as a means of clarifying the status or understanding relationships between many life forms. Although molecular research has been undertaken using some representatives of this group of orchids, this has primarily been aimed at the area of higher level of classification of Dendrobieae base on use of a restricted area of the genetic code (Clements 2003; 2006). The thorny issue of the rank of taxa within the Dendrobieae has not been raised in this paper so as to concentrate on taxonomic problems within this particular group of orchid. Consequently the taxonomic conclusions presented in this paper are primarily based on study of plant biology and morphology pending outcomes of any future molecular research on this particularly interesting and showy group of orchids.

These studies reveal support the recognition of five species within the *D. polysema* complex: *D. polysema*, *D. pulchrum*, *D. pallidum*, *D. stenopterum* and a new species *D. pacificum*. Details for each and the basis for their recognition are provided under each species. Significantly, the true identities of *D. polysema*, *D. pulchrum* and *D. stenopterum* are confirmed or revealed and reference made to the appropriate application of those concepts to previously published work to facilitate the correct application of names. Further study is required on elements within *D. pulchrum* where two or more forms would appear exist and between the morphologically similar *D. pulchrum* and *D. pallidum* where the exact nature of the relationship is unclear. The taxonomic conclusions of taxa within the complex are presented below.

Taxonomy

Dendrobium polysema Schltr. in K. Schum. et Laut., *Fl. Schutzgeb. Sudsee, Nachtrage* 163 (1905) & Fig. Atlas . t. CLXVII, f. 628 (1923-28); *Sayeria polysema* (Schltr.) Rauschert, *Feddes Repert* 94(7-8): 468 (1983).

TYPE: Kaiser-Wilhelms-Land: On trees in the forests of the Bismarck Range, alt. c. 1500 m, Jan 1902 *R. Schlechter 14066* (holo B†).

(for full detailed description – see Schlechter 1905).

Distribution: Papua New Guinea: widely distributed Western highlands, Chimbu, Eastern highlands, Morobe and Central Provinces.

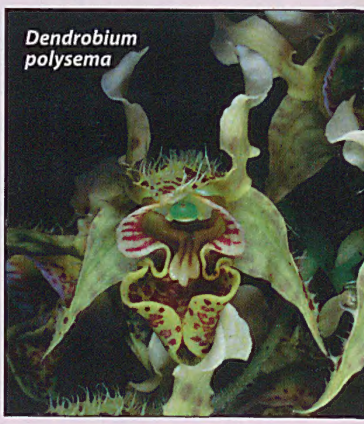
Habitat and Ecology: A relatively common epiphyte on large trees in montane forests at 1200-1900 metres. This species often occurs in dense groups or as isolated plants high up on the heavy boughs or on the main trunk of rainforest trees, as well as adapting to older re-forestation, plantations and on shade trees within coffee plantations.

Notes: Although Schletcher (1912) only found this species once during his two expeditions to New Guinea nevertheless his detailed description and illustration clearly identify this orchid. He rejected Kraenlzin's attempt to unite *D. polysema* with the earlier described *D. macrophyllum* (Kraenzlin 1910) noting that they were different in every floral character. Controversy surrounding the true identity of *D. polysema* has existed since description substantially through misidentification of many plants in cultivation and transposition of those concepts into the popular and scientific literature. Cribb (1982) partially clarifying the situation in an article in *Curtis's Botanical Magazine* accompanying a colour plate of a specimen collected by Morrison at Efogi, Papua New Guinea that was truly representative of this species as originally described by Schlechter.

Dendrobium polysema is a characteristic member of this group of orchids and readily recognised by: i) the erect inflorescence of up to 20 often closely packed light green and externally, heavily red spotted flowers; ii) flowers including the pedicel and ovary, externally, densely covered with fine setae; iii) flowers medium sized erect and spreading lanceolate sepals, reflexed oblanceolate, acuminate petals, and prominent trilobed labellum; iv) labellum with erect, narrow tapered to obtuse side lobes embracing the column, sometimes cohering at the apex light green with white with red stripes along the outer margins; a cordate midlobe distinctly undulate and pinched at base, with incurved margins often overlapping and a bluntly apiculate apex, heavily spotted with red on both sides; v) a prominent blunt, cross laminar callus; and vi) flat trilobed central callus ridge extending base between the pinched area of the midlobe.

This interpretation of *D. polysema* does not correspond to that outlined by Cribb (1982) where the large flowered specimens are representative of another of Schlechter's species, *D. pulchrum*, were also included in that concept (see below).

Although attractive and unique in its own right, nevertheless plants of *Dendrobium polysema* in the strict sense are generally horticulturally inferior to those of *D. pulchrum* (misinterpreted as *D. polysema*). Typically plants of *D. polysema* have fewer flowers per inflorescence, and the flowers are often clustered together near the apex of the rachis. The flowers are proportionally smaller and the thick textured labellum is severely pinched and undulate at the base of the midlobe. These are features that do not lend themselves to plants of this species having been used in breeding programs and the production of horticulturally desirable hybrids.



Dendrobium pulchrum Schltr., *Repert Sp. Nov. Regni Veg., Beih.* 1: 496 (1912) & Fig. Atlas . t. CLXIX, f. 629 (1923-28).

TYPE: Kaiser-Wilhelms-Land: On trees in the forests of the Dischore Range, above Dschischungari (Waria River), alt. c. 1200 m, May 1909, *R. Schlechter 19605* (holo B†).

(for full detailed description – see Schlechter 1912).

Distribution: Papua New Guinea: where only know with certainty from Morobe Province: Dischore Range; Eastern highlands, Karanka, and Central Province Agaun.

Habitat and Ecology: On trees in the forests and on rocks to about 1200 m.

Notes: Controversy has also surrounded the identity of this species since description. Schlechter was quite clear about the distinctiveness of *D. pulchrum*. Study of the protologue and accompanying illustrations of the dissected flowers of both *D. polysema* and *D. pulchrum* leaves one in little doubt that Schlechter considered he had two separate species in hand. This means some alternative explanation and current interpretation of taxa is required. Having established that the name *D. polysema* correctly applies to a small flowered species with a distinctive pinched labellum, this leaves most plants currently interpreted under that name rather being truly representative of the species *D. pulchrum*. In fact *Dendrobium pulchrum* can readily be distinguished from *D. polysema* by possession of: i) sepals being covered with coarse setae; ii) subspathulate-ligulate, obliquely acuminate, conspicuously undulate and recurved petals with a Brahman cattle horn or droopy dog ears like appearance when view from the front of the flower a feature well illustrated by Schlechter; iii) proportionally larger flowers (sepals 30 vs 28; petals 25 vs 23; labellum 28 x 23 vs 23 x 23); iv) erect obliquely-triangular, obtuse lateral lobes of the labellum; v) conspicuous showy midlobe with or without incurved lateral margins, and vi) prominent central callus protruding beyond the base of the lateral lobes of the labellum.

As enunciated by Schlechter, *D. pulchrum* is a magnificent species with large showy flower. Our studies suggest there is considerable variation in this species but the exact relationship remains uncertain pending the outcomes of future molecular based research.

It seems likely that *D. pulchrum*, because of this size differential and overall presentation of flowers, is much more common in cultivation than is true *D. polysema*. On this basis it would appear highly probable that most registered hybrids using the name *D. polysema* as one parent are more likely to have been based on the showier larger flowered *D. pulchrum*.

Dendrobium pulchrum **Grown by Jon Cara, ex Geoff Stocker (DPB)**

Dendrobium pulchrum **(DPB)**

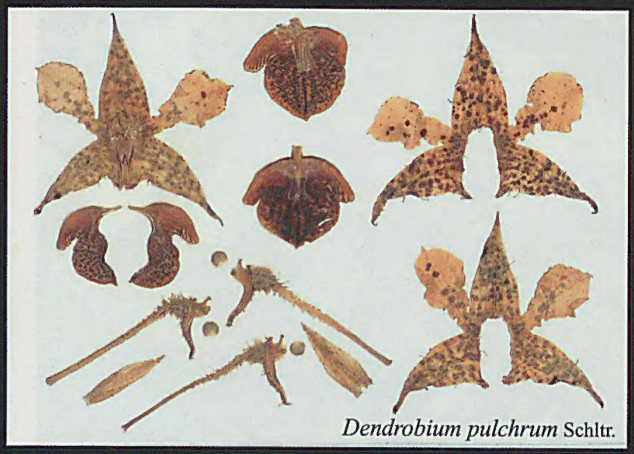
Photo P. Spence

Dendrobium pulchrum Schltr.
Mt. Wilhelm PNG

Photo P. Fetherstone

Dendrobium pulchrum Schltr.
Finchhafen PNG

Herbarium cards compiled by Phil Spence



Dendrobium pulchrum Schltr.

Dendrobium pulchrum **with example of flowers and accompanying floral dissection cards showing the variation *(PS)***

Dendrobium pulchrum **this is the most common form seen in cultivation** ***(MAC)***

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Dendrobium pulchrum
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AOR 010

Dendrobium pallidum (Chadim) M.A.Clem. et P.J.Spence, ***comb. nov.*** Basionym: *Dendrobium polysema* Schltr. var. *pallidum* Chadim, *Austral. Orch. Rev.* 29(1): 30-32, f. (1964).

TYPE: New Guinea, Eastern Highlands, near Karanka, alt. c. 1500 m, Oct 1963, *V.A.Chadim 7* (holo K!).

Description: A large epiphytic herb. *Pseudobulbs*, 20-70 cm long, clavate, 5-1.5 cm wide at the middle, 2-leaved 3-5-noded at apex. *Roots*, slightly thick, flexuose, glabrous. *Leaves*, up to 25 cm long, 6-13 cm wide erect to spreading ovate, or ovate-oblong, shortly acuminate, glabrous, coriaceous. (The tips of the leaves are more acute than *D. polysema*). *Inflorescences*, terminal, erect to semi-erect, many-flowered, up to 45 cm long. *Peduncle*, 0.5-0.8 cm in diameter, strong, thick, terete, with 3-4 well-spaced sheaths along length. *Sheaths*, lanceolate, ovate, 2.5-3 cm long. 1.8-2 cm wide at base. *Rachis*, more than half of inflorescence each pedicel clad with a large bract at the base. *Bracts*, 1.5-2.5 cm long 1.0-1.6 cm wide. *Flowers*, medium-sized to large, sepals white-cream or cream-greenish, lightly spotted maroon, setose on outer surface, petals white-cream, spotted maroon. *Lateral Sepals*, 3.0-3.5 cm long, 1.5 cm wide obliquely falcate-lanceolate, acuminate. *Dorsal Sepal*, 3.0-3.5 cm long, 1.3-1.4 cm wide, ovate-lanceolate, acuminate. *Mentum*, 1.2 cm long, incurved-conical. *Petals*, 2.6-3.2 cm long, 1.6 cm wide, often reflexed, oblanceolate or obovate, apiculate, mostly with or sometimes without strongly undulate margins. *Labellum*, tri-lobed, incurved, 2-2.4 cm long, 3.8 cm wide when pressed flat, side-lobes smaller than mid-lobe, 0.8 cm long 0.8 cm wide glabrous, lateral lobe minutely incurved, joined together at the apex, falcate oblong, slightly obtuse, intermediate lobe broad, ovate and slightly obtuse acuminate, undulate in the margins, 3 linear calli at the base. Yellow, spotted or blotched with maroon on mid-lobe and striped maroon on side-lobes. *Callus*, creamy- white. *Column*, short, 0.3-0.35 cm long, with an up-curved hook on each side at apex; foot incurved, 1.2 cm long. *Ovary*, 0.3 cm long, *Pedicel* and *Ovary* 4.2 cm long, *Ovary* densely setose, pedicel clavate.

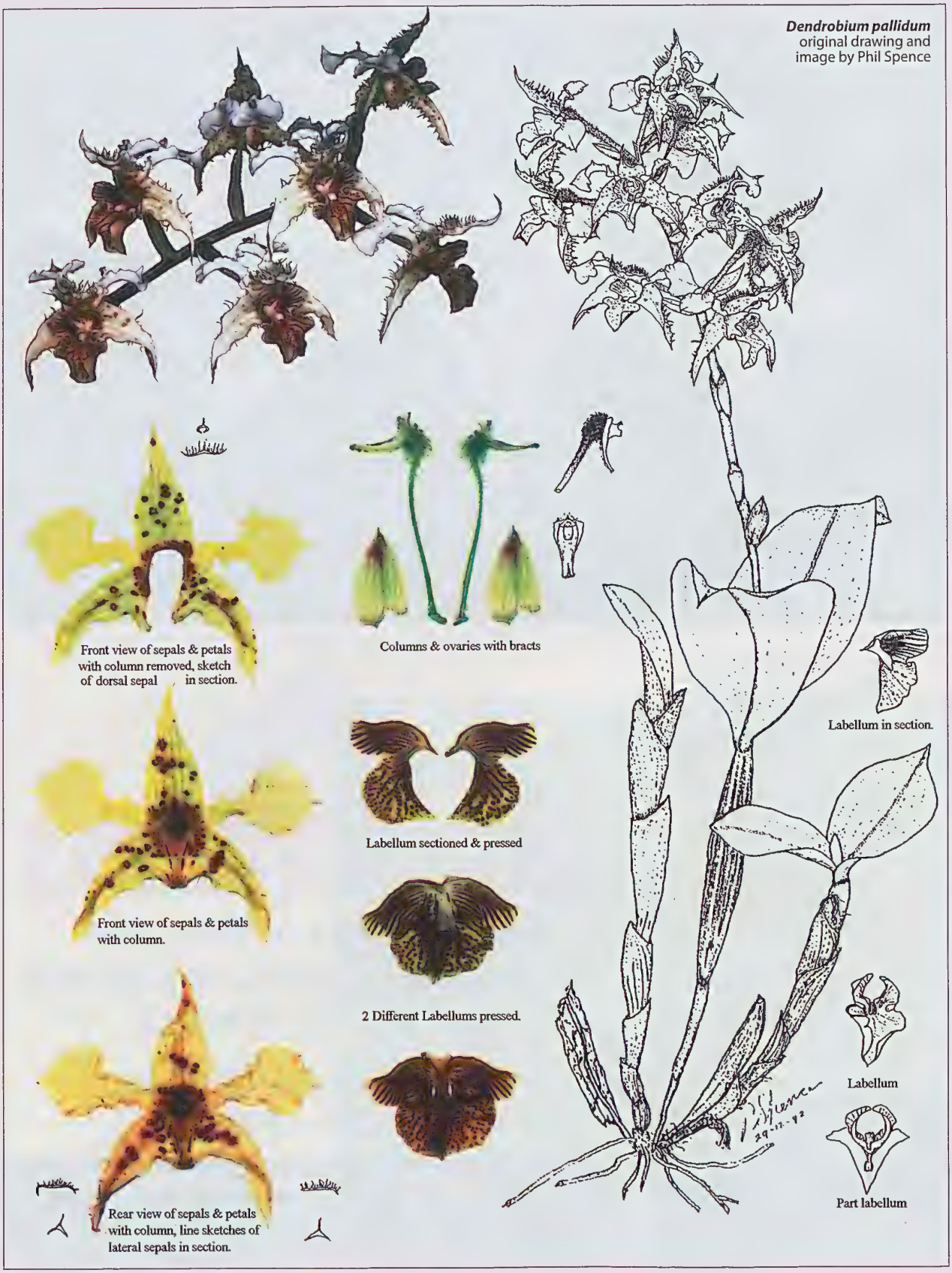
Distribution: Papua New Guinea: Eastern highlands, Karanka, and Central Province Agaun, on rocks.

Habitat and Ecology: Epiphytic on large trees and boulders in montane forests at around 1500 m. locally common, occurring in dense colonies or isolated plants high up on the heavy boughs or on the main trunk.

Notes: *Dendrobium pallidum* is another large flowered species extremely similar to *D. pulchrum*. It was (as *Dendrobium polysema* var. *pallidum*) likewise treated as a synonym of *D. polysema* (Cribb 1983). It is differentiated from *D. pulchrum* by: i) basal flower colour cream and lacking visible spots situated on the outer sepals surface; ii) labellum midlobe coloured pattern predominantly red venations with spots near the centre and apex (spotting throughout in *D. pulchrum*), iii) consistently fewer flowers per inflorescence 5-12 (rarely 20) versus 5-50 in *D. pulchrum*; and iv) later flowering period. The reduced number of flowers per inflorescence in *Dendrobium pallidum* and pale striped rather than spotted flowers are consistent feature of this attractive orchid enabling it to be differentiated from the more colourful, spotty flowered *D. pulchrum*.

It will be interesting in the future to establish the true nature of relationship between the two species through DNA analysis.

Dendrobium pallidum (MAC)


Dendrobium pallidum
original drawing and
image by Phil Spence
Front view of sepals & petals with column removed, sketch of dorsal sepal in section.
Columns & ovaries with bracts
Labellum in section.
Labellum sectioned & pressed
Front view of sepals & petals with column.
2 Different Labellums pressed.
Labellum
Part labellum
Rear view of sepals & petals with column, line sketches of lateral sepals in section.

Dendrobium pallidum ex Agaun PNG (MAC)

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Dendrobium pacificum M.A.Clem. et P.J.Spence, ***sp. nov.*** affinity *Dendrobium polysema* Schltr. but differing from that species by plant smaller with stout fusiform pseudobulbs, c. 10-12 cm long; smaller flowers (c. 30 x 30 mm) with similar segments coarsely hispid on outer surface, ovary and pedicel; labellum callus shorter, oblong-ligulate, with two longitudinal tear-drop shaped grooves and blunt, rounded apex.

TYPE: cultivated Australian National Botanic Gardens, 20 June 1996 ex Vanuatu; Espirito Santo, near Mt Tankara on road to Tiouri, alt. c. 700 m, Nov. 1989, *M.A.Clements 5611c* (holo CANB; iso NSW).

Description: *Plant* epiphytic herb to 30 cm tall, forming clumps. *Roots* fleshy, rugose and brown. *Rhizome* very short, covered by the pseudobulbs; flexuose. *Pseudobulbs* fleshy, clavate and slightly flattened, dull green, 6-8 x 23-25 x c. 30 mm; subtended by a single (rarely two) fleshy, erect leaf. *Leaf* spreading, coriaceous, conduplicate, elliptical to oblong, ridged along centre abaxially, petiolate, 180-200 x 33-36 mm, petiole c. 30-32 mm. *Inflorescence* terminal to subterminal, erect to arcuate, few to c. 12 flowers, c. 50-70 mm long; peduncle terete; sterile bracts, at base, ensheathing the stem, slightly flattened; usually one or two on stem, triangular with acute apex, 8-10 x 6-7 mm. *Floral bracts* similar, ensheathing the pedicel. *Ovary* markedly setose, 3 x 1.5-2 mm; pedicel spreading, the setae rapidly becoming smaller and sparser on the upper pedicel, almost absent on the basal half, 9-12 x 1 mm. *Flowers* small for the taxon, stellate opening widely, sepals yellowish green, heavily spotted maroon, setose on outer surface, petals yellowish green, spotted near central vein and at base; labellum porrect, heavily marked with maroon striations along veins on side lobes, and heavy spotted on midlobe with creamy-white central callus, 30 x 28 mm. *Dorsal sepal* ovate-lacoelate, acuminate, slightly cucullate, with prominent abaxial central ridge, 15 x 7.5 mm. *Lateral sepals* obliguely falcate-lanceolate, acuminate widely spread, with prominent abaxial central ridge, 15 x 7.5 mm. *Petals*, oblanceolate, spread widely, slightly twisted to undulate in basal half, apiculate; 12 x 4.5 mm. *Labellum* trilobed, fleshy, recurved with prominent sidelobes equal to midlobe, 14 x 9 mm when flattened; sidelobes erect, incurved embracing and over arching the column, nor touching at apices, oblong, slightly dilated at apex, margin uneven; midlobe porrect with inrolled margins, transversely spathulate, apex apiculate; callus at base oblong-ligulate with central cleft, traversing region at base and front of side-lobes, central lobe a smooth dome with two distinct tear-drop shaped longitudinal grooves and a blunt, rounded apex, 1.5-2 mm tall. *Column* short, erect, slightly flattened, glabrous, obtuse, trilobite, the doral lobe larger, with prominent stigma cavity, terminal subacute stylidia, 2 x 2.5 mm, the column foot at right angles to column, smooth, 5 x 2 mm. *Anther cap* rounded, green. *Pollinia* four in two closely appressed, smooth, yellow subreniform pollinaria.

Distribution: *Dendrobium pacificum* inhabits rainforest regions throughout Vanuatu and the Solomon Islands.

Habitat and Ecology: Found growing on the branches of small trees in remnant lowland rainforest.

Notes: The new species is superficially a smaller more compact version of true *D. polysema*. A detailed examination of and comparison with *D. polysema*, as correctly interpreted by Cribb (1982; t. 798), also reveals that *D. pacificum* can readily be distinguished by possession of: i) the stout plant habit; ii) courser setae covering the sepals; iii) highly visible, uniformly red spots or veins on outer and inners surface of sepals, petals and labellum on an otherwise greenish yellow flower; iv) small, shapely ridged, bifid, laminar callus; and v) blunt, obscurely trilobed central callus. *Dendrobium pacificum* has been treated as a natural clinal extension of *D. polysema*, having developed smaller features in isolation on islands but there is no scientific evident to support this idea. However, further molecular research should be undertaken to reveal the true nature of the relationship between the two species.

In cultivation plants of *D. pacificum* exhibit a set of unique attributes that are horticulturally highly desirable. *In vitro* germinated seedlings retain the unique compact form of plants exhibited in the wild and readily developed short, thick clavate stems 5-8 cm tall in the first year following deflasking. Some of these plants seedling plants have since flowered.

Etymology: In reference to species originating on an island in the Pacific Ocean.

Dendrobium pacificum (PS)

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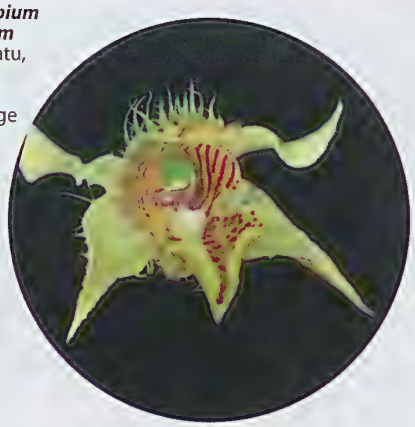
Dendrobium pacificum ex Vanuatu, original drawing and image by Phil Spence

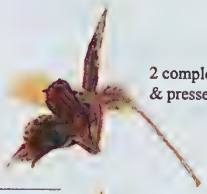


Dendrobium pacificum M.A. Clem. et P.Spence, *sp. nov.* *ex Vanuatu*

SECTIONED FLORAL PARTS SCANNED FROM DRIED MATERIAL

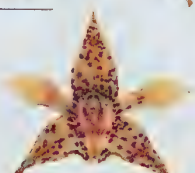
Callus from on top

Callus from collum foot back towards labellum

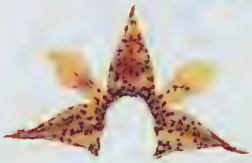


2 complete flowers sectioned & pressed flat

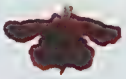
2.5 CM.



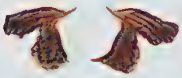
Sepals & petals with column



Sepals & petals removed from column



Labellum pressed flat



Labellum sectioned & pressed flat

Column ovary & pedicel

Flower bracts

Inflorescence bract

Dendrobium pacificum (MAC)

Dendrobium pacificum (MAC)

Dendrobium pacificum (MAC)

Dendrobium pacificum on left, compared to the larger single flower of *Dendrobium pulchrum* (MAC)

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AOR 065

Dendrobium pacificum (MAC)

Dendrobium stenopterum (Rchb.f.) Chadim, *Orchadian* 4: 28 (1972). Basionym: *Dendrobium macrophyllum* A.Rich. var. *stenopterum* Rchb.f., *Gard. Chron.* (ser. 3), 3: 392 (1888).

TYPE: cult., London, *W.Bull s.n.* (holo W!).

Description: *Plant* epiphytic herb to 30 cm tall, forming clumps. *Roots* fleshy, rugose and brown. *Rhizome* very short, covered by the pseudobulbs; flexuose. *Pseudobulbs* fleshy, clavate and slightly flattened, dull green, 6-8 x 23-25 x c. 30 mm; subtended by a single (rarely two) fleshy, erect leaf. *Leaf* spreading, coriaceous, conduplicate, elliptical to oblong, ridged along centre abaxially, petiolate, 180-200 x 33-36 mm, petiole c. 30-32 mm. *Inflorescence* terminal to subterminal, erect to arcuate, few to c. 12 flowers, c. 50-70 mm long; peduncle terete; sterile bracts, at base, ensheathing the stem, slightly flattened; usually one or two on stem, triangular with acute apex, 8-10 x 6-7 mm. *Floral bracts* similar, ensheathing the pedicel. *Ovary* markedly setose, 3 x 1.5-2 mm; pedicel spreading, the setae rapidly becoming smaller and sparser on the upper pedicel, almost absent on the basal half, 9-12 x 1 mm. *Flowers* small for the taxon, stellate opening widely, sepals yellow, hispid on outer surface, petals yellow; labellum porrect then recurved in apical half, green or greenish yellow, heavily marked with maroon striations along veins on side lobes, and heavy spotted on midlobe with white central callus, 32 x 35 mm. *Dorsal sepal* erect, ovate-lacoelate, acute, with prominent abaxial central ridge, hispid on abaxial side, 13-14 x 6-7 mm. *Lateral sepals* obliguely falcate-lanceolate, acuminate widely spread, flattened, with prominent abaxial central ridge, 14-15 x 9 mm. *Petals*, narrowly oblanceolate, spread widely, slightly twisted to undulate along margins, sharply acute, 13 x 3.5 mm. *Labellum* trilobed, fleshy, recurved with prominent sidelobes smaller and narrower than midlobe, 19 x 11 mm when flattened; sidelobes erect, slightly falcate, incurved embracing and over arching the column, nor touching at apices, with slightly uneven margins; midlobe porrect then sharply recurved, with inrolled margins, transversely spathulate, apex acute; callus central to based of sidelobes, a smooth dome with three superficial ridges, a blunt, rounded apex, 2 mm tall. *Column* short, erect, slightly flattened, glabrous, obtuse, trilobite, the dorsal lobe larger, with prominent stigma cavity, terminal reduced stylidia, 2 x 2.5 mm, the column foot at right angles to column, smooth, 5 x 2 mm. *Anther cap* rounded, light green. *Pollinia* four in two closely appressed, smooth, yellow subreniform pollinaria.

Distribution: Papua New Guinea: Karkar Island, where collected on the trunks and branches of tall trees in rainforest growing along ridges along the track to Mt Kurungui. It was locally abundant although never common. Possibly also Irian Jaya, Cyclops Mountains and Prince Alexander Mountains and the Torricelli Mountains, Papua New Guinea.

Habitat and Ecology: Found growing on trees along in mountains in tropical rainforest at around 500-600 m. This species favours dense rainforest growing erect with roots in the moss cover at the base of large trees.

Dendrobium stenopterum (John Varigos)

Notes: The origin of this species has been a mystery since description as *D. macrophyllum* var. *stenopterum*. Cribb (1983) considered *D. stenopterum* (as *D. macrophyllum* var. *stenopterum*) was closely related to *D. polysema* and placed it into synonym. Although *D. stenopterum* was described as a variety of the widespread *D. macrophyllum* features of the labellum in particular possession of narrow, falcate sides lobes suggest its affinities instead are with the widespread *D. polysema*. It differs significantly from that species in possessing: i) a proportionally smaller flower, with stiff spreading segments, ii) smaller labellum with porrect flat midlobe, iii) greenish-yellow flowers that turn straw yellow with age, and iv) contrasting heavily spotted and striped labellum with a prominent white almost globose central basal callus. As there is no detailed botanical description for this taxon one has been provided here.

The re-discovery of *D. stenopterum* on Karkar Island situated immediately north of Madang off the north-east coast of Papua New Guinea, fits within the realms of possibility of the origin of the original collection. Many plant species were obtained by early botanical collectors where they did not venture too far off the coast inland into potentially hostile areas in New Guinea. Karkar Island is one of a series of volcanic islands situated in an arch off the New Guinea coast all of which may have been visited by early collectors and explorers to the region. It's probable that plants of this species were obtained during one of these short forays onto the island, material taken to Europe were brought into cultivation and flowered and then sent to Reichenbach for determination and ultimately description.

Plants of the same or a very similar species has been collected at three separate locations along the northern edge of mainland New Guinea. One in the Prince Alexander Mountains, a second in Torricelli Mountains both from Papua New Guinea and third from Irian Jaya, the Cyclops Range near Djajapura. This material was brought into cultivation and subsequently flowered in the National Capital Botanical Gardens, Port Moresby. The exact relationship to the Karkar Island form of *D. stenopterum* remains unresolved.

Plants of *D. stenopterum* lend themselves to cultivation and are attractive when in full flower. The smallish straw yellow flowers with a darker brown labellum and prominent white basal callus are a feature of this species.

Dendrobium stenopterum (D. Munro)

Sectioned floral parts scanned from dried material

3 cm.

Complete flower sectioned.

3 Diferent flower bracts.

Front view of sepals , petals, column, & labellum.

Rear view of sepals , petals, column, & labellum.

2 Different labellums sectioned & pressed.

2 Different front view of sepals , petals,with column, removed.

2 Diferent labellums.

2 Different columns & ovarys.

Dendrobium stenopterum
original drawing and image by Phil Spence

Acknowledgements

This project forms part of the senior author's (MAC) research on the systematics and phylogeny of the Dendrobieae and he wishes to thank the past and present directors of the Australian National Botanic Gardens and Centre for Australian National Biodiversity Research for their support. This project also was in part funded by the G. Hermon Slade Trust and the Sainsbury Trust and for their contribution we are extremely grateful. We wish to thank the many people who have contributed to this study throughout the many visits to Papua New Guinea and Vanuatu; without their help and generosity including accommodation, we would not have been able to successfully undertake this research. Most of the photographs and images used here were taken by the authors, David Banks, D. Munro, John Varigos and the late Peter Featherstone, with line drawings by Phil Spence and Lucy Turner. The senior author would also like to thank the Curators and Directors of various institutions including AD, AMES, B, BM, BO, BRI, CANB, E, FL, G, HBG, K, L, LAE, MEL, NOU, NSW, P, SING and W for allowing access to facilities during various visits to those botanical collections.

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Dendrobium stenopterum (PS)

Dendrobium stenopterum KarKar Island *(PS)*

Dendrobium stenopterum KarKar Island *(MAC)*

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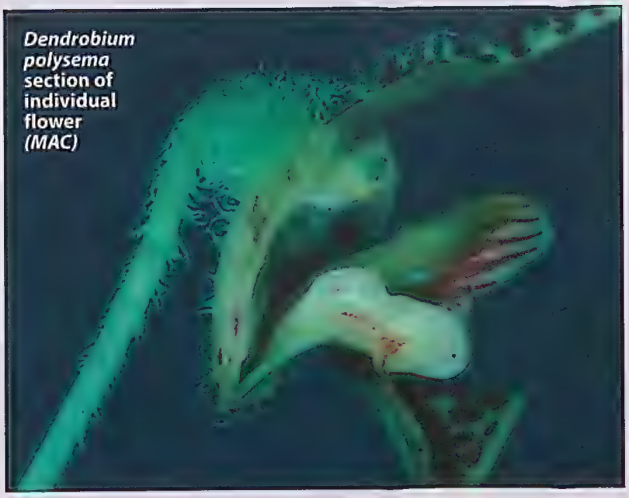
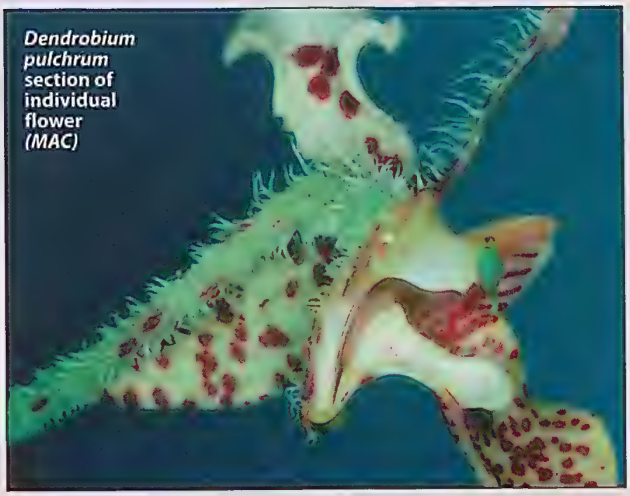
Dendrobium stenopterum KarKar Island *(MAC)*

Dendrobium stenopterum
(drawing by artist Lucy Turner)

(a) plant, (b) flower front view, (c) flower cross section, (d) flower side view, (e) lateral sepal, (f) labellum flattened out, (g) petal, (h) labellum side view, (i) dorsal sepal, (i) column side view, (k) column front view, (l) anther cap rear view, (m) anther cap side view, (n) pollinia.

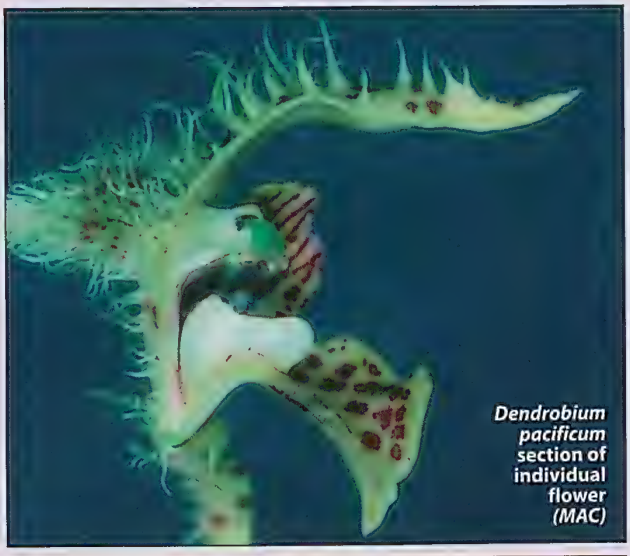


Dendrobium polysema section of individual flower (MAC)



Dendrobium pulchrum section of individual flower (MAC)

Dendrobium pallidum section of individual flower (MAC)



Dendrobium pacificum section of individual flower (MAC)

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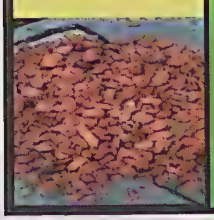

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AOF Award of Honour for 2016 to Phil Spence

Mr Philip John Spence, a well-known hybridiser and grower of orchids from Australia and the Pacific region, was presented The Australian Orchid Foundation **Award of Honour** for 2016. In presenting the award at the AOF annual general meeting held October 2016 in Melbourne, Chairman of Directors Mrs Helen Richards and Research Committee Chairman, Professor Kingsley Dixon referred to Phil's outstanding work in many fields of orchid science and cultivation.

Phil's international reputation as a grower and hybridiser is well documented and recognised by his publications in local and international journals and participation in specialist orchid conferences. He has demonstrated to the World the enormous potential of the poorly understood orchid flora of New Guinea and the Pacific region. His practical insights to their ecology, has greatly assisted growers determined to cultivate this little known, but valuable group of plants. The size and depth of his work as a hybridiser is clearly shown in the iconic reference *Sanders List of Orchid Hybrids* where, in examining the genus *Dendrobium*, it is revealed that he has been the second most prolific international worker in history.

Philip John Spence

Phil was born on 18th September 1940 and his interest in orchids developed early. Beginning at the age of 11, he worked for several years after school and at weekends as a junior in a large *Cymbidium* nursery (Allen's Nursery at Lane Cove, NSW). As his interests developed in the early 1960s, he began experiments with *in vitro* propagation of orchids from seed and tissue culture. His special interest at this time was the line breeding and hybridisation of Australian orchid species (especially *Dendrobium* and *Sarcochilus* and related genera). To assist in developing his skills he undertook short courses on *in vitro* techniques at the Universities of New England, Sydney and Hawaii. He also gained experience in commercial nursery operations with the Australian Cymbidium Company.

Phil originally trained as a printing engineer completing a five year apprenticeship with *The Daily Telegraph* in 1971. Over the next 31 years he furthered his knowledge in this specialised field and worked in many facets of the printing business both as an employee and a consultant. His occupation and interest in orchids were largely complimentary, for it gave him the opportunity to travel throughout Australia and the Pacific region (especially Papua New Guinea) and revealed to him the great potential for growing and hybridising species found in this region.

Initially Phil's interest in orchid developed in parallel, and as time permitted, with his business as a printing engineer, but in 1997 growing orchids assumed a dominant role and enabled him to delve even more deeply into orchid science, hybridisation and cultivation.

After many short term visits to Papua New Guinea (the first dating back to 1966), Philip was appointed in 1997 to be Director of the Research Centre of the National Capital Botanic Gardens in Port Moresby. Here his main duties were to explore the potential for establishing a cut flower industry based on the orchids native to the region. To achieve this objective a library was established, expeditions mounted to collect new and poorly known species, a hybridising programme begun, laboratory and herbarium established, and staff trained in all aspects of orchid cultivation. Overseas specialists were encouraged to assist in the major task of documenting the orchid flora. The Gardens were landscaped and soon became an important attraction to tourists and locals alike.

The work of documentation and hybridisation continued on Philip's return to Australia in 2000. Currently his major interest centres on the *Dendrobium* species of Section *Latouria*: their taxonomy and hybridisation. In the course of pursuing his interest in orchid taxonomy, he was invited to become an Honorary Research Associate of the Herbarium of the Royal Botanic Gardens, Sydney.

Over the years Philip has made an important contribution to international orchid science assisting many researchers in the field and in correspondence. Phil has also introduced dozens of new, rediscovered and interesting orchid species into general cultivation due to his seed raising efforts, and making such flasks and seedlings available. The field trips he has led to Papua New Guinea have provided further opportunity for enthusiasts to experience the orchids and the environment of our near neighbour at first hand and provided participants with the benefit of his unparalleled knowledge.

Geoff Stocker
Malanda, Queensland

Dendrobium alexandrae – Phil was involved with the rediscovery and propagation of this rare species from Section *Latouria* *(DPB)*

Dockrillia fuliginosa – known and interpreted incorrectly decades ago as *"Dendrobium teretifolium* 'Black Pam'" – Phil brought this species into cultivation *(MH)*

Dendrobium Lime Delight (*engae* x *biloculare*) *(DPB)*

Painting of Phil Spence by Edwin Wilson (ex. Royal Botanic Gardens, Sydney)

Dendrobium Gerald McCraith
'Northmead'
(*engae* x *convolutum*)
(DPB)

Sarcochilus now and into the future

by Scott Barrie (photos by Randall Robinson)

In the last few years I have had the opportunity to hear Dr Randall Robinson discuss various *Cymbidium* questions at the CSA (Cymbidium Society of America) congress in Santa Barbara. Last year, it was 'What's new?' Randall opened with the statement that "You can't know where you are going without knowing where you have been." This has stuck with me and motivated me to look at and compare the early development of Cymbidiums with our current development in *Sarcochilus*. The table below shows some of the interesting statistics. Comparisons shown are between Cymbidiums and *Sarcochilus* at the same stage of their hybrid history, 64 Years after the first hybrid was registered.

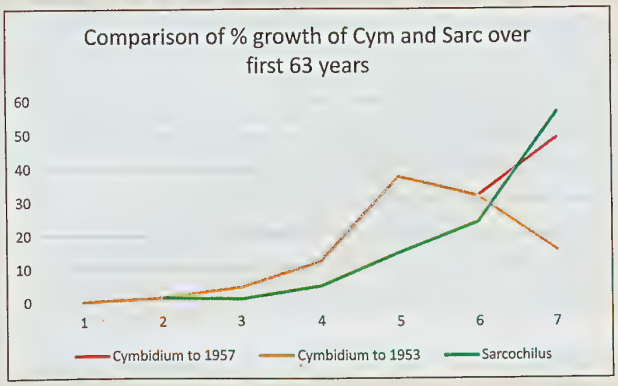
Table 1. Comparison of *Cymbidium* and *Sarcochilus*

	Cymbidium	*Sarcochilus*
First Hybrid Registered	1889	1963
Total hybrids (all years)	15861	744
Comparative at 64 years (1953)	1640	744
Years since first hybrid	128	64
Hybridisers at 64 years	153	78
% Origin of hybridisers at 64 years	43% USA, 38% UK, 11% AU, 8% Other	82% AU, 13% NZ, 5% Other
Number of Species	62	20
Distribution	Asia, Australia	Australia and New Caledonia
Number of Primary hybrids	206 (42 at 64 years)	35

As can be seen above, Cymbidiums attained more than double the number of hybrids in the same number of years. I speculate that this is due to several factors. Firstly, the distribution of the hybridisers. Secondly, the appeal of Cymbidiums for the horticultural industry of the time period. During the 1900's the *Cymbidium* breeders were driven by the cut flower ideals of bigger, flat flowers. As the plant style was of lower consideration in this line of development, some colour strains developed unruly plant size. These days, during the time of greatest *Sarcochilus* development, potted plant sales are as important a focus of the horticultural industry as cut flowers. This brings plant style, size and floriferousness to the forefront. We are seeing a revolution in *Cymbidium* plant size and style, so to in *Sarcochilus*.

Table 2. Comparison of early (first 64 years) hybrid growth of *Cymbidium* and *Sarcochilus*

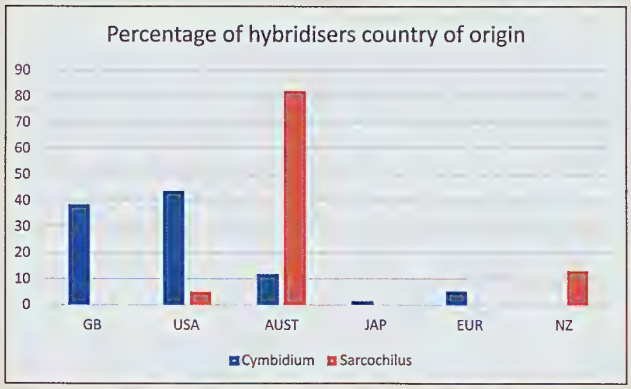
Cymbidium			*Sarcochilus*		
Decade	Hybrids registered	Percent of total	Decade	Hybrids registered	Percent of total
1950-1953	251	15.2	2010-2017	419	56.3
1940-1949	516	31.2	2000-2009	175	23.5
1930-1939	610	36.9	1990-1999	107	14.3
1920-1929	190	11.5	1980-1989	32	4.3
1910-1919	65	3.9	1970-1979	5	0.6
1900-1909	17	1.0	1963-1969	8	1
1890-1899	4	0.2	**Total**	**746**	**100**
pre 1889	2	0.1			
Total	**1655**	**100**			



Note on the *Cymbidium* trend: I included the numbers to 1957 to give an accurate account of the trend in *Cymbidium* in that decade and a better comparison with the corresponding *Sarcochilus* trend to 2017. The downturn in Cymbidiums to 1953 (lower percentage of the overall hybrids due to the shorter period) does not show the trend of that decade.

What we are seeing is a growth curve faster than that of *Cymbidium*. In my opinion the driving factor of this curve in *Sarcochilus* is the rapid increase in colour diversity. As the colour range increases so does the interest in creating and acquiring hybrids. The average growth rate of *Sarcochilus* hybrids is 259% per decade (including incomplete 2010-2019). If this trend continues we should see close to 2000 registered hybrids by 2030. This is almost 3 times the number we have today. It would be a wonderful result for this beautiful Aussie genus.

Table 3. Comparison chart. Origin of hybridisers



This Chart shows that by the same stage of development, Cymbidiums were being hybridised in five countries. Whereas *Sarcochilus* development has been dominated by Australians (82%) with 13% from New Zealand. While this shows the dedication of the Aussies to this primarily indigenous genus, I believe that for increased developments to occur, the gene pool must be spread out into the greater world.

Selecting for the future

As a commercial grower, we take every opportunity to improve this genus on a broad spectrum of traits. I often wonder if the early developers of *Cymbidium* had shown more attention to the importance of ease of growth and spiking, would modern cymbids look and behave as they do today?

The first chance we have to do this is as the plant is de-flasked. We cull plants that do not show vigour. A plant that does not thrive from the outset has no place in either a commercial nursery or in a private collection. The old tale of "The best flowers come from the slowest growers" was simply devised to sell the runts of a cross. So, the runts are thrown away, and after 10 to 12 months the thriving seedlings are moved to a larger pot size. This is the next chance to evaluate the growth of the seedlings. Again, plants that are not moving at or above average are culled.

Some seedlings will flower on their first wintering. This last flowering season we saw a plant only ten months from flask produce two flower spikes from a single growth plant! Generally, however, it will take 18 to 24 months from flask for the seedlings to flower. Now, we are selecting plants based on spike production and habit. The context is colour. In this part of the selection we consider the development stage of each particular colour style. If it is an advanced line such as white, the criteria are very strict. Spike production for a white flower needs to be 4 or more from a growth. The habit must be upright. However, if it is a new colour such as a dilute orange, where we only see a few seedlings showing this colour form, the criteria are relaxed. As more seedling show up in the colour form, we apply a tougher standard. There is no point in limiting early diversity development for the sake of a prematurely unrealistic ideal.

This selection criteria applies to the plants we choose for breeding, to build the *Sarcochilus* of tomorrow. We are generally only looking for one or two select plants from a cross based on the above criteria. As any unfit plants are identified and culled, our remaining plants are still of equal or higher traditional values for a hobby grower, and are well looked after and treated with the same care as every other plant we produce. It is our aim to grow all our plants as well as possible so that when they are sold the buyer has the best chance of success. Our open day showcases the latest flowering of our hybrids and is a wonderful opportunity for enthusiasts to pick up a loved *Sarcochilus*.

A little speculation on the possibilities

Sarcochilus have been used to create several intergeneric hybrids. Notably, *Sarconopsis* (*Sarcochilus* x *Phalaenopsis*) and *Sartylis* (*Sarcochilus* x *Rhynchostylis*) which progressed with the addition of *Vanda* to create *Porterara*. The majority of the intergeneric hybrids were made with *Sarcochilus hartmannii* or a white primary hybrid as at the time these were most readily available. With the new and wider spectrum of colour forms available, the next generation of intergeneric hybrids should present a greater appeal to both orchid enthusiast and general public alike.

The compact, clumping nature of *Sarcochilus* makes it an interesting avenue for the Vandaceous cut flower breeders to use in their hybridising programs.

Personally, I like the *Neofinetia* (*Vanda* under much protest!) x *Sarcochilus*. I have not seen this combination made, but it seems an obvious hybrid to make. Two compact plants that are very floriferous. *Neofinetia* has shown that it allows colour from the other parent to come through. The hybrid would also have warmth tolerance over the cool temperate *Sarcochilus*.

Overall, we are in the midst of a fantastic time in *Sarcochilus*. With the expanding colour range now is a great time to collect a few of these space-humble plants and be part of something exciting. Thanks to Randall Robinson for photographing our plants last flowering season.

Scott Barrie
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***Sarcochilus* Kulnura Hysteria**

***Sarcochilus* Kulnura Absolute**

***Sarcochilus* Kulnura Mischief**

***Sarcochilus* (Kurumba x Kulnura Spice)**

Group of modern *Sarcochilus* hybrids bred by Barrita Orchids showing the range of new colours now being developed and made available

52nd Tropical Queensland Orchid Council Conference and Show 2017

With the 52nd TQOC Inc/70th TOS Inc Anniversary Conference and Show fast approaching, preparation has stepped up a notch. The Early Bird discount has come and gone, fees are now $150 for registrants.

On a sad note after 52 years of yearly conferences, which began with Townsville staging the very first conference (1965), it is fitting that Townsville now closes these 52 years of Conferences and Shows, a lot of wonderful memories abound with all past Conferences. We now look to Conferences every 2 years, hopefully fitting in with Southern Societies and Clubs with minimal clashes

Most orchid growers are now aware our main speaker for this event will be Fred Clarke of Sunset Valley Orchids in California followed by Denis Kao of Ching Wah Nursery, Taiwan.

Our lecturers and topics include Fred Clarke "*Catasetum* and their Culture" & "Spotted and Splashed Cattleyas", Bruce Gray "Section *Spathulata Dendrobium* Species and natural hybrids of Cape York", Charles Truscott "Growing and breeding *Spathulata* Dendrobiums", Gary Yong Gee "Compact Species for Warm Climates", Alan Stephenson "Conservation", Kevin Butler "Phragmipediums and *Paphiopedilum rothschildianum*, Denis Kao "*Phalaenopsis*" and "Paphiopedilums", plus a number of others have been arranged.

Apart from Fred's and Denis's lectures, all other presentations will run two at a time. It is hoped to have all lectures videotaped along with Conference highlights and available to registrants and interested parties at a reasonable cost.

We now have a substantial array of vendors to satisfy all taste in Orchids and Foliage. Foliage sellers include Ron & Gloria Hilder, Elvira who specialises in succulents, Ron Place will have a variety of foliage to suit all, Harold Cooper has a vast array of colourful Bromeliads. Bill Crabb specialises in Garden box beds on legs along with watering utensils. Professional Plumbing Services will have a large variety of watering solutions available for purchase.

Orchids lovers are well catered for, Kuranda Exotics, Hubbard's Orchids, Cape Oasis, Orchids North, Eric Beltrame specialising in Bulbophyllums, Fred Clarke, flasks of the latest hybrids and DVDs on growing plants, Denis Kao, flasks of Taiwanese Hybrids. Max & Sue Rawlins, Mackay Orchids, Woolf OrchidCulture Flasks, Fraser Coast Orchids. (Vast array of Colourful Dendrobiums), Stephen Fay and his *Phalaenopsis*, Alice's Orchids, Charlie Truscott with his well grow *Spathulata* Dendrobiums and *Cattleya* hybrids plus Singapore Nursery (a late addition) flasks.

I hope there is something in the lecture programme or the vast array of plants to whet your appetite and join us in celebrating not only the last yearly TQOC Inc Conference and Show but also celebrating the Townsville Societies' 70th Anniversary. Those of you who may be considering entering cut flowers, please do so, we will have plenty of suitable containers to place such exhibits in.

Registration forms are still available on line **www.tqoc.org.au** monies can be paid directly into the bank account, you will be warmly welcomed to this Conference, fees are $150. We look forward to welcoming you to "Paradise in Winter".

Ted Boon
Email: tboon_wildcat@internode.on.net

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A Bit About... *Dendrobium falcorostrum*

by Gerry Walsh

WOW! I hope I haven't chomped off more than I can swallow with this bite at *Dendrobium falcorostrum*. I trust that a few more snippets of info on the old Beech Orchid won't cause mass nausea. Everyone has or should have a plant or two of *D. falcorostrum* in his or her bushhouse. And everyone probably has their own way of growing it. Indeed, it would appear that *D. falcorostrum* is nearly everyone's favourite species.

This was certainly confirmed by the 1988 NSW Epiphytic Orchid Survey (*Orchadian* 10:4) which showed that it is nearly twice as popular as the second placed species, *D. speciosum*. One quarter of all respondents listed *D. falcorostrum* as their favourite native species.

Dendrobium falcorostrum Barrington Tops (DPB)

Why is this so, I hear you cry out? What is it about *D. falcorostrum* that places it so high on everyone's 'love list'? I suppose the answers are many and varied, none of which are really obvious, but when considered all together, tally up a pretty high score. For a starter, the size of the plant itself is ideal. It isn't a monstrous lump of a species requiring a couple of itinerant labourers and a removalist truck just to get a specimen plant to a show.

Yet, it certainly can't be categorised as "one of your botanicals", an unintelligent phrase that many exotic orchid growers like to toss about with gay abandon when describing any species of Australian native orchid that can't be used in the cut flower trade.

D. falcorostrum can form a lovely specimen plant in as little as a ten inch pot and yet still lend itself to safe transportation in the average horseless carriage. And once you get it to the show, you can see it from anywhere in the hall without having to squint your eyes like you've just hit your finger with a hammer. Being a 'manageable' size certainly has its appeal for elderly growers.

An average length 'cane', or pseudobulb to be pedantic, of *D. falcorostrum* would be around 25 to 35cm. At the upper end of the scale, sometimes canes will reach 50cm long and 2.5cm width. At the lower end, flowers can form on dwarfed little runts of maybe 10cm length if these have grown in sunny spots.

And flowers having such a lovely, crisp white colour certainly inspire admiration from nearly everyone. While other Dendrobiums have white flowers, they don't always exhibit the tremendous substance that *D. falcorostrum* flowers do. They are solidly white, not wafery or thin, nor are they spidery flowers. They always look 'OMO' white! And the contrasting red striations at the base of the column really stand out, giving a focal point to each bloom.

These wonderful white blooms are attached to inflorescences up to about 12cm long that, in the main, are upright or 'arching erect', if I can use such off-beat terminology. There are no great air pockets between the flowers; they are spaced closely together, verging on being bunchy, and yet seldom being so. This lends a solid appearance to an already solid looking plant.

But the greatest attribute that *D. falcorostrum* employs to captivate people has to be its perfume. I know I'm always sprouting off about the perfume of our native orchids. Over the years, I've probably nominated a dozen or so species as having the strongest perfume in the Australian bush... many of our orchids are highly perfumed. But I guess I have to override all my other choices for 'most potent perfume' and give the title to *D. falcorostrum*.

There is a simple way to gauge the strength of an orchid's perfume. On a warm day at about lunch time, snip a single flower off a plant and place it in a central place inside your home. Shut the place up and go shopping for a few hours.

When you unlock the front door you'll almost certainly be knocked off your feet by the overwhelming fragrance of whatever species you selected. One bloom of *D. falcorostrum* will pervade every nook and cranny in your house.

One of the most enjoyable experiences I know of is wandering around in forests of *Nothofagus moorei* (common name, Niggerhead or Antarctic Beech). This is not a species with a very wide distribution but, where they do occur, they can be totally dominant. Antarctic Beech is severely restricted to damp and cool highland regions of northern New South Wales and extreme southern Queensland at altitudes exceeding 900 metres.

There about a dozen or so mountainous locations where 'Beech' is found in large tracts, but these tracts are rather isolated from each other and there could not possibly be any exchange of genes between them. Beech forests are cool, damp, cool, mossy, cool and dusky. To walk in them is akin to creeping about in a cathedral and trying to avoid waking up you know who. Beech forests are eerie. If you haven't visited one, you really don't know what you've missed. Get active! They are readily accessible.

The more notable Beech zones are: The Barrington/ Gloucester Tops; Mt Banda Banda; Werrikimbe National Park; Dorrigo Plateau; western Dorrigo; New England National Park; western Border Ranges (west of Mt Lindesay); McPherson Tweed Range; Lamington Plateau and Springbrook Plateau. There are other isolated, smaller pockets over the range of these major zones. Beech trees can get real big - not necessarily high - but enormous in girth. They are truly a leftover from ancient times and there are related species found in Tasmania, New Guinea, and South America.

There has apparently been fossil evidence found below the ice caps in Antarctica, thus proving a common link to Gondwana when all these land masses where part of the one set up. The Antarctic Beech is a tree for the ages. It is estimated that many of them are over a thousand years old and aren't multiplying with staggering success either. *D. falcorostrum* is reliant for its survival on *Nothofagus moorei*, for it is totally restricted to this tree as a host.

Very few plants are observed on anything else but, before you all start jumping up and down, odd plants will occasionally be seen on other hosts. In 1982 I found a plant on a giant Coachwood tree that had slipped into the Wilson River near Port Macquarie. This was only about 250 metres above sea level. Nearby, in 1987, I found a plant growing on rocks in amongst big clumps of *Sarcochilus aequalis*. We thought it to be *D.* x *gracillimum* at first because we refused to believe that *D. falcorostrum* could be found so far out of place. I have seen it on the trunks of *Cyathea australis* treeferns at Mt Banda Banda in 1980 and at Mt Allyn in 1988 and 2001.

Perhaps the most surprising colony I ever come across was in the southern Barrington Tops in 1992. In an area of about half an acre there were many seedlings and young adults growing very well on mixed species saplings, (certainly not Beech), of no more than arm's thickness and perhaps five metres high. There were big Beech trees nearby that were loaded with *D. falcorostrum*.

I would guess that the fungus with which this orchid is obviously shackled to for seed germination, and which usually restricts itself to the Beech, has inexplicably colonised those young trees. The orchid seed cannot tell the difference and has made use of an available niche. It will be interesting to watch the progress of this unusual little patch as the years go by.

Dendrobium falcorostrum* 'Outback' Barrington Tops *(MH)

Within the confines of the Beech Forest, *D. falcorostrum* is often staggeringly abundant. It colonises only the major branches and main trunk of the mature trees. Very rarely would they take root on even moderately thick limbs of say 20cm. Clumps up to 1.2 metres often sit high up in full sun if the crown of the host tree has died. In some areas dead crowns of Beech trees seem to be fairly common.

The big clumps of *D. falcorostrum* are highly visible. To see the same big clumps in full bloom in the flowering season is something you will never ever forget. A real big clump can have hundreds of pseudobulbs. Unlike *D. speciosum*, the Beech Orchid will produce more than one crop of blooms from the leaf axils. They will also flower from any of the nodes along the whole length of the bulb. In this way it is similar to *D. gracilicaule* although not nearly so freely in this manner.

I have never been able to detect any differences in the flowers or the growth habit of plants from anywhere over the whole distribution of *D. falcorostrum*. The blooms display remarkably little variation, except the normal and minor variations in flower size within any species. Perhaps the pseudobulb length of Dorrigo plants is a little longer than those from other locations. This is more likely attributable to nutrient availability however.

Plants up on the Border Ranges are a little shorter than most other locations to the south of the northern most population perhaps. These things could never be absolute in any way naturally. So much depends on prevailing rainfall and exposure to the elements. Considering that there is no gene exchange between all the island populations, *D. falcorostrum* demonstrates an astonishingly stable evolutionary pattern.

Most growers pot their beech orchids in some form of the tried and successful formula of bark and other additives like perlite, pebbles and volcanic rock. Most of these combinations work quite well. Sooner or later the bark will start to go off. Then it will hold too much water and salts etc will build up. New bulbs will become more stunted and you know the rest.

All the while, if you are a poor repotter like me, the top layer of bark will look fairly nice to the eye. Deep down in the pot it's another story of course. I am a very lazy grower when it comes to these matters dear reader. Do what I tell you to do and not what I do do. Write that out one hundred times! If you are like me and find excuses for your basic failure than there may be another way.

D. falcorostrum can be successfully mounted. A lot of growers do not realise this. Once again a big lump of treefern will be the best host to mount on. *Cyathea* or *Dicksonia* will be suffice. I have had considerable success by just sitting a big lump of treefern on the bench with a beech orchid tied on the top. Cut out a rough niche just wide enough to accept the orchid. Tie it up a bit to keep it upright while the roots find their way into the host. In other words the treefern mount is not hung up. It is simply sat horizontal on the bench. You should keep it moist at all times.

You could also hang this array up if you choose to. Moisture retention is much greater if left sitting on the bench however. Watch out for ferns that will appear from time to time. Pull them out before they take over is my advice. They look attractive but they will be detrimental in the long term. I have kept specimen beech orchids on the same treefern mount for 15 years and all was well. Eventually the whole lot will collapse on you and you will need to start from scratch someday. Regretfully, I have the skeletal remains of plants sitting in rotten pine bark because I did not repot. If you are like me then think about mounting some of the traditionally potted orchids.

Dendrobium falcorostrum* habitat in mist - Barrington Tops *(DPB)

For small plants I have used cork as well. I think it is too dry for larger *D. falcorostrum* plants however. Treefern is so good for mounting beech orchid that I would not bother with anything else. Just remember to use a big hunk of it. *D. falcorostrum* specimen plants will weigh many kilos when wet. Small mounts will simply tear up. *D. falcorostrum* will flower well in conditions of shade where other species would not bloom well at all. It could bloom successfully where, *D. speciosum* for example, would simply not bloom often at all. The crown of a large Beech tree is often very dense and evolution has allowed *D. falcorostrum* to handle the dark conditions. Conversely, it will often flower incredibly well in bright sunny conditions.

When your plants start opening their buds it would be handy if you could get down on your knees and pray for cool weather. A flush of hot days can end the flowering performance of your beech orchids from weeks to just a few days. In its own environs up on top of those mountains, at over 900 metres, it rarely gets hot enough in September to damage the blooms. They sometimes even cop flakes of snow in winter. At lower altitude where most of us try to grow it, a high temperature day will cause the blooms to toss it in quickly. Watering often helps but is not successful long term. Just keep on praying folks.

Like any orchid that can grow into very large clumps, it is going to need a heap of tucker or it will not thrive. You must fertilise to get the best results. I chuck a handful of slow release stuff such as Osmocote 9-month formula into all my potted orchids twice a year. Sometimes I will sprinkle light amounts of Blood and Bone onto the bark as well.

I simply have no time in my life to spray water soluble fertiliser around every few weeks. Except on my seedlings and mounted plants. Finally, getting your hands on a plant of *D. falcorostrum* won't be a problem these days. Various nurseries have seedlings of it and it is commonly seen in the collections of many growers. Treat yourself to a big beautiful Beech Orchid and life will be good to you. (Photos by Michael Harrison, David Banks and Len Field.) ■

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Dendrobium falcorostrum 'Big Head' Mt. Banda Banda *(MH)*

Dendrobium falcorostrum Mt. Banda Banda *(DPB)*

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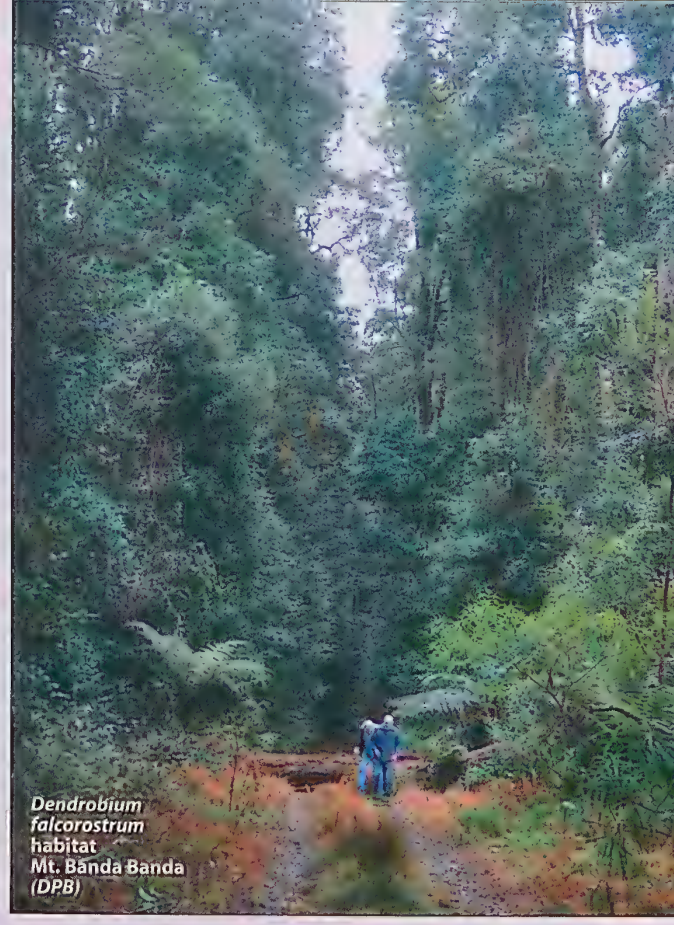
Dendrobium falcorostrum
Mt. Banda Banda
(DPB)



Dendrobium falcorostrum
habitat
Mt. Banda Banda
(DPB)

Dendrobium falcorostrum
Dorrigo
(DPB)

Dendrobium falcorostrum
– young seedling
(DPB)

Dendrobium falcorostrum – spectacular colony of plants in full bloom, Dorrigo *(scanned off old colour print by Len Field)*

Dendrobium falcorostrum very rare to find this species growing as a lithophyte, Dorrigo *(scanned off old colour print by Len Field)*

Dendrobium falcorostrum – specimen plant, Dorrigo *(scanned off old colour print by Len Field)*

Three New Species of *Oligochaetochilus* (Orchidaceae) from the Northern Flinders Ranges of South Australia

by David L. Jones and Robert J. Bates

Abstract

Oligochaetochilus bracteatus, Oligochaetochilus limbatus and *Oligochaetochilus terminalis* are described as new. Notes are included on their ecology and conservation status; their distinguishing features are compared with allied taxa.

Key Words

Orchidaceae, Oligochaetochilus bracteatus, Oligochaetochilus limbatus, Oligochaetochilus terminalis, new species, South Australia, Flinders Ranges, Australian flora.

Introduction

Oligochaetochilus was erected by Szlachetko as a new genus distinct from *Pterostylis* R.Br in 2001 (Szlachetko 2001). The status of the genus was supported by the morphological and molecular studies of Jones and Clements (2002), who also intended to recognise this group of orchids as new at generic rank. At the same time they also recognised 12 sections within the genus. Although *Oligochaetochilus* has not been generally accepted by the botanical community, its generic status was again supported by the research of Clements, Ortero and Miller (2011). Continuing multigene molecular studies using ITS sequences combined with three plastid genes also uphold its status at generic rank (M. Clements *pers. comm.*).

Oligochaetochilus is a complex genus of at least 100 endemic species, about 65 species of which have been formally recognised (Jones 2006). Most species are found in southern regions but at least four species occur in the Queensland tropics (Jones 2010). Although a core of species grow in high rainfall coastal and near-coastal sites, the genus is perhaps best known for its ability to survive in areas of low and unreliable rainfall, displaying a remarkable radiation of species in these arid and semi-arid habitats.

South Australia is thought to have up to 50 species of *Oligochaetochilus*, many of them undescribed. (Bates 2011-2016). Jones (2007, 2009) described five new South Australian *Oligochaetochilus* from the higher rainfall southern parts of the state, leaving many species from the dry north in need of further study. Bates (2014) described *Oligochaetochilus simulans* from semiarid lands of the Northern Flinders Ranges. In these drier regions of low and unreliable rainfall, the orchids flower only in high rainfall years, particularly following above-average wet winters. These climatic events are becoming increasingly less common in the Northern Flinders Ranges and the climate there is obviously drying. Additionally the genus has been very poorly collected in northern South Australia due to lack of access roads, scattered sparse populations and vegetation damage resulting from more than a hundred years of grazing by cattle, sheep, feral goats and rabbits. Some of these orchids survive only because their tubers are often buried under a hard shale surface which protects them from being dug up by rabbits or crushed by cloven hooves. This paper describes a further three arid land species and continues our work which is based on thirty years study of the genus in South Australia.

Materials and Methods

Descriptions of the new taxa were made from fresh specimens as well as dried material. All species were imaged and studied in the field and relevant types or photos were seen by the authors.

Taxonomy

1. *Oligochaetochilus bracteatus* D.L.Jones & R.J.Bates, ***sp. nov.*** With affinity to *Oligochaetochilus excelsus* (M.A.Clem.) Szlach. but differing by its shorter stature, more numerous, tightly clasping sterile bracts, smaller maroon, white and heavily veined flowers with shorter segments, sparsely hairy synsepalum (almost glabrous on the margins), shorter labellum much thicker than wide and held well away from the front of the synsepalum when set, labellum margins with longer setae, and capsules with red ribs.

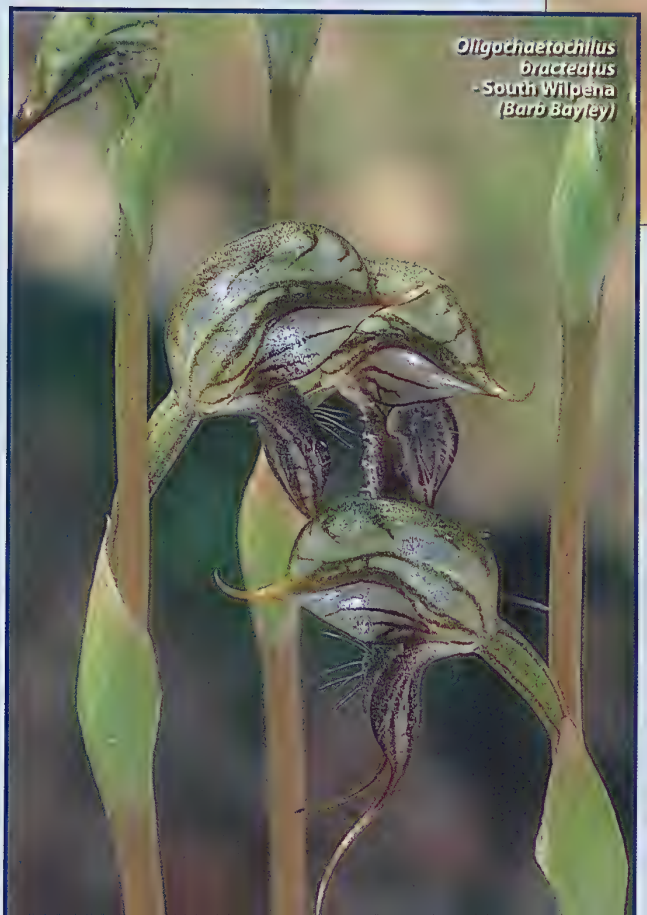
TYPE: South Australia Flinders Ranges, Six Mile Well south east of Wilpena, 15 Oct. 2013, *R.J. Bates 94922* (holo CANB, iso AD).

Illustrations: none seen.

Description: Plants often growing in clumps. *Tubers* oblate-spheroid, 15-20 mm diam., shallowly buried. *Leaves*, sessile, 5-9 in a radical rosette, imbricate, usually withered at anthesis; *lamina* ovate to elliptical, 12-15 mm long, 4-7 mm wide, mid green, with a network of raised, rugulose veins, margins with short siliceous cells, apex subacute. *Scape* 15-20 cm tall, c. 2 mm wide, two- to five-flowered. *Sterile bracts* four or five, closely sheathing, ovate-lanceolate, 15-20 mm long, 5-10 mm wide, chartaceous, apex acute. *Floral bracts* similar but ovate, 10-12 mm long, c. 5 mm wide, loosely clasping, green and white with darker veins, margins transparent, apex papery, acuminate. *Pedicels* slender, c. 5 mm long, curved, enclosed within the floral bract. *Ovaries* narrowly ovoid, 3-3.5 mm long, c. 1 mm wide, curved, obliquely erect at about 60° to the rachis, pink with rounded green ribs. *Flowers* porrect; *galea* translucent white with prominent maroon or leaden veins, stripes and bands of colour, edged with dense microscopic red immersed glands; *lateral sepals* dark maroon with white lines and pale tips; *petals* transparent with maroon veins and margins. *Galea* glabrous, erect and gibbous at the base, then shallowly curved for much of its length before curving sharply down towards its apex, the surface covered with minutely beaded siliceous cells; petal flanges well developed, green, touching and closing off the base of the galea opening;

petal margins incurved. *Dorsal sepal* 8-10 mm long c. 4 mm wide, cucullate, distal point 3 mm long, hooked upward. *Lateral sepals* strongly deflexed, not reflexed back toward the ovary; conjoined part as wide as the galea, shallowly concave, ovate when flattened, c. 10 mm long, 4 mm wide, narrowest near the base, broadest near centre; margins thickened, incurved, posterior margins with numerous, short, acicular, transparent siliceous cells; sinus narrow, c. 30°, margins glabrous; free points deflexed, filiform, divergent, 5-8 mm long, palest toward apex. *Petals* asymmetrical, ovate-lanceolate, falcate, 6-7 mm long, c. 2 mm wide; dorsal margin thickened, red, with numerous minute glands; anterior margins curved, glabrous; proximal flange large; apex acuminate. *Labellum* highly irritable, attached by a visible green, narrow claw c. 1 mm long, 0.5 mm wide. *Lamina* cuneate, c. 5 mm long, 1.2 mm wide, shallowly downcurved, dark maroon to black, densely covered with beaded siliceous cells, upper surface shallowly concave, strongly constricted in the proximal third; *basal lobe* much raised, crescentic with a pale gibbous base, separated from the main lobe by a narrow neck, wider than the lamina, with two pairs of setae, the central pair vertical to 0.4 mm long, the outer pair longer, finer and curved outwards; *abaxial surface* with a narrow central cleft extending almost to apex; *distal margins* with numerous, short, crowded trichomes; *apex* subacute, densely pubescent. *Labellum marginal setae* very variable, somewhat deciduous, up to ten, a few to 5mm long (as long as the labellum itself), curved forwards and outwards. *Column* porrect from end of ovary, c. 9 mm long, 1.5 mm wide, incurved, red. *Column wings* oblong, c. 3 mm long, c. 1.5 mm wide; *upper lobe* vestigial; *basal lobe* c. 0.1 mm long, ovate, ciliate; *barrier trichomes* moniliform. *Anther* c. 1.3 mm long, retuse. *Pollinia* elliptic, 1.5 mm long, deep yellow. *Stigma* linear-elliptical, c. 4 mm long, 1.5 mm wide, margins smooth. *Capsules* ovoid, 4-5 mm long, c. 3 mm wide, green with red ribs.

Oligochaetochilus bracteatus - South Wilpena (Barb Bayley)



Oligochaetochilus bracteatus - South Wilpena (Barb Bayley)

Oligochaetochilus bracteatus - rosettes of leaves before flowering, (R. Bates)

Distribution and ecology: Endemic in South Australia where restricted to the central Northern Flinders Range from Hawker to Blinman growing on shattered purple shales in shallow valleys under river red gums (*Eucalyptus camaldulensis*), often around copses of native pines. Flowering: Late September and October.

Recognition: Characterised by its flowers which are mostly maroon and with short segments, bulbous petals and a tiny labellum with long marginal setae. Its clumping habit, reduced stature and more numerous sterile bracts on the scape are also significant when compared with related taxa such as *Oligochaetochilus excelsus*, which it replaces in this section of the Flinders Ranges, and sympatric members of the *Oligochaetochilus bisetus* complex. It shares its reduced stature and clumping habit with the local form of *Oligochaetochilus boormanii*.

Similar species: *Oligochaetochilus simulans*, which grows along rivers further north in the Flinders Ranges, flowers earlier, has differently coloured flowers (green and brown) with longer segments and a very acute labellum apex. No other members of the *Oligochaetochilus excelsus* complex have rosettes forming clumps while *Oligochaetochilus excelsus* itself is a much taller, later-flowered species.

Conservation Status: Becoming rare due to more than a hundred years of grazing over most of its range, decreasing rainfall, increasing weed cover and surviving because its tubers are often buried under a protective hard shale surface.

Etymology: The Latin *bracteatus*, bracteate, bearing bracts, in reference to the numerous, distinctive, pale, ovate, tightly stem-clasping sterile bracts on the scape.

Other collection seen: South Australia Northern Flinders Ranges: Sacred Canyon track, 18 Oct, 2016, *R.J. Bates 96050* (AD).

Oligochaetochilus bracteatus - showing bracts on developing inflorescence, note dying rosette of leaves *(Ed Lowrey)*

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2. *Oligochaetochilus limbatus* D.L.Jones & R.J.Bates, ***sp. nov.*** With affinity to *Oligochaetochilus simulans* (R.J.Bates) R.J.Bates but differing by its lesser stature, loosely sheathing leaf-like sterile bracts clustered at base of the scape (scattered up the scape in *O. simulans*), larger flowers, all segments brown and white and strongly striped (green and brown and reticulate-veined in *O. simulans*), synsepalum with a border of darkly thickened margins (absent in *O. simulans*), and pale free points (dark free points in *O. simulans*), much wider petals (relatively narrow in *O. simulans*), larger, broader, elliptical to oblong elliptical labellum not markedly exserted in front of the synsepalum (strongly exserted in *O. simulans*) and without setae on the basal mound, (instead with a pair of eye-like swellings), the margins with a few short setae (long setae in *O. simulans*), and an obtuse apex (acute in *O. simulans*).

TYPE: South Australia Flinders Ranges, Road to Sacred Canyon (east of Wilpena), near Wood Duck Dam, 5 Oct. 2016, *R.J. Bates 97121* (holo CANB).

Illustrations: none seen.

Oligochaetochilus limbatus **- plant in bloom, Sacred Canyon** ***(Ed Lowrey)***

Description: Short, dryland terrestrial orchid occurring mostly as widely spaced individual plants. *Tubers* oblate-spheroid, 15-20 mm diam., shallowly buried. *Leaves* subsessile, 5-9 in a radical rosette to 5 cm across, glaucous, imbricate, often withered at anthesis; *lamina* ovate to elliptical, 0-15 mm long, 5-8 mm wide, blue- green, with a network of raised veins, margins smooth, apex subacute to obtuse. *Scape* 10-15 cm tall, c. 2 mm wide, three- to eight-flowered. *Sterile bracts* three or four, mostly in a loosely overlapping cluster near the base of the scape, ovate-lanceolate, 10-12 mm long, 5-10 mm wide, apex acuminate. *Floral bracts* larger, ovate, 11-14 mm long, c. 6 mm wide, loosely stem-clasping, yellow-green, apex acuminate. *Pedicels* slender, c. 8 mm long, curved, enclosed within the floral bract. *Ovaries* narrowly cylindrical, 3-3.5 mm long, c. 1 mm wide, straight, obliquely erect at about 60° to the rachis, green. *Flowers* suberect; *galea* translucent white with prominent green-brown stripes and minor veining; *lateral sepals* white with brownish stripes, prominent darker brown margins and pale free points; *petals* transparent. *Galea* glabrous but with minutely beaded siliceous cells, erect and hardly gibbous basally, then shallowly curved for much of its length before curving sharply down towards the apex; *petal flanges* well developed, brown, touching and closing off the base of the galea opening; *petal margins* not incurved. *Dorsal sepal* 10-12 mm long, 5-6 mm wide, cucullate, distal point 6-8 mm long, mostly straight. *Lateral sepals* deflexed, hardly reflexed; conjoined part as wide as the galea, shallowly concave, ovate when flattened, c. 10 mm long, 4 mm wide, narrowest near the base, broadest near centre; sinus 30-40°, margins thickened with a few short posterior bristly cells; free points 10-12 mm long, decurved to pendulous, their tips hardly divergent. *Petals* asymmetrical, elliptical, 8-10 mm long, c. 4 mm wide; dorsal margin thickened; proximal flange large. *Labellum* highly irritable, attached by a greenish, ligulate basal claw c. 1.3 mm long, 0.7 mm wide. *Lamina* elliptical to oblong-elliptical, c. 5 mm long, 2 mm wide, broadest near the middle and constricted near the junction with the basal lobe, dark brown with beaded siliceous cells, shallowly concave, held close to the lateral sepals; *basal lobe* much raised, crescentic, pale brown, gibbous, almost as wide as the lamina, mostly without bristles but with a basal pair of eye-like swellings; *adaxial surface* pale, with a narrow central cleft extending almost to apex; *distal margins* with numerous short crowded trichomes; *apex* narrowed but mostly obtuse, densely pubescent. *Labellum marginal setae* limited to the central section, about six pairs, mostly about 4 mm long. *Column* porrect from end of ovary, c. 9 mm long, c. 1.5 mm wide, incurved. *Column wings* oblong, c. 3 mm long, 1.4 mm wide; *upper lobe* vestigial; *basal lobe* c. 0.1 mm long, ovate, ciliate; *barrier trichomes* moniliform; *anther* c. 1.3 mm long, retuse. *Pollinia* elliptic, 1.5 mm long, deep yellow. *Stigma* linear-elliptical, c. 4 mm long, 1.3 mm wide, margins smooth. *Capsules* narrowly obconical, 4-5 mm long, c. 3 mm wide, green.

Distribution and ecology: Endemic in South Australia where restricted to the central Northern Flinders Ranges east of Wilpena, growing in shallow valleys under river red gums (*Eucalyptus camaldulensis*) in loamy soils over stony shales; also around native pines and on lower slopes in *Dodonaea*-dominated shrublands. Flowering: Late September and October.

Recognition: Characterised by its comparatively large translucent white flowers with prominent green-brown stripes and minor veining, the lateral sepals white with distinctive darker brown margins, pale free points and a thickened labellum with a blunt apex. Its reduced stature and leafy bracts in a loose cluster at the base of the scape are also distinctive.

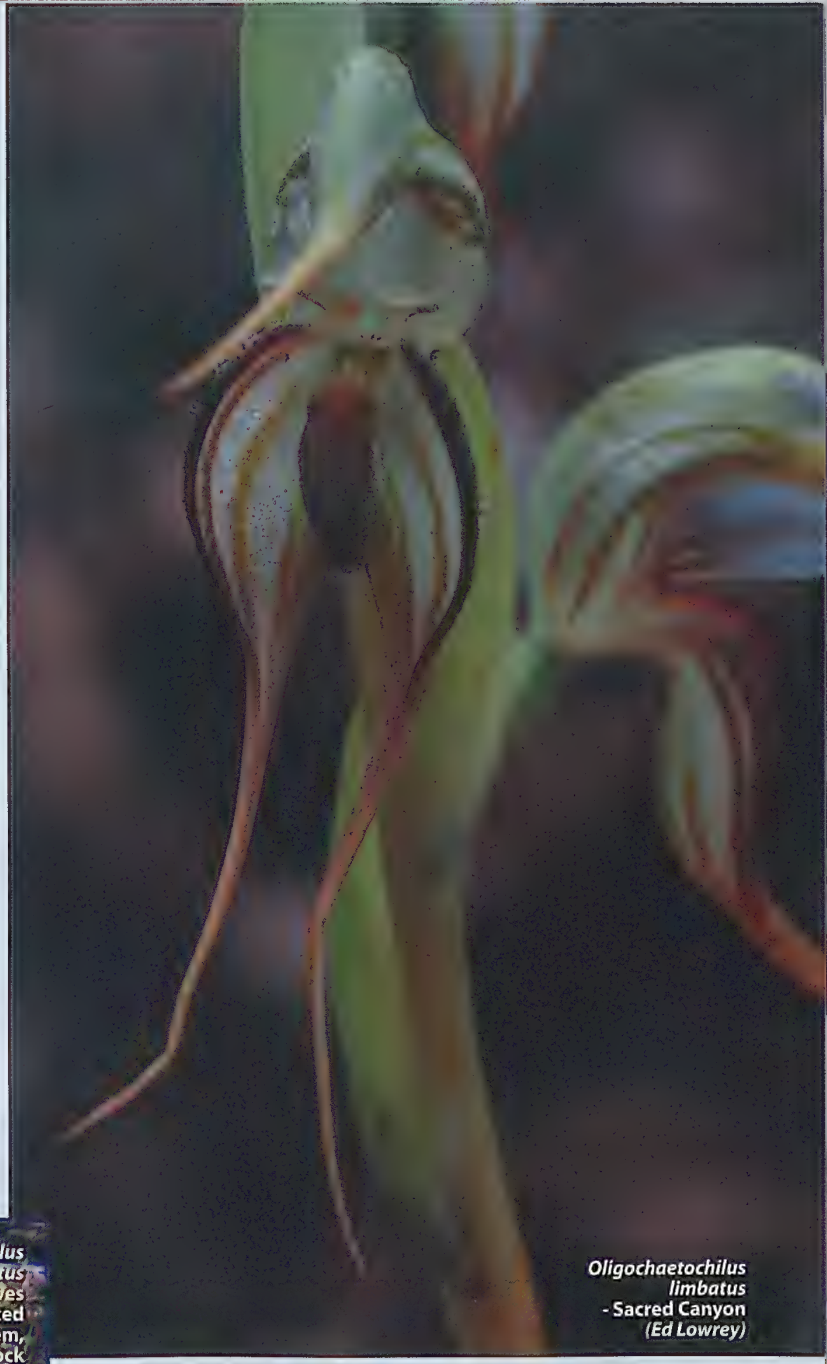
Similar species: *Oligochaetochilus simulans*, which grows along rivers further north in the Flinders Ranges, flowers earlier, has green and brown flowers that are not strongly striped, longer segments and a very acute labellum apex. *Oligochaetochilus limbatus* is often sympatric with the smaller-flowered *Oligochaetochilus bracteatus* which has green and maroon flowers and numerous short, pale, tightly clasping bracts extending up the scape. Whereas *Oligochaetochilus limbatus* grows singly as scattered individuals, both *Oligochaetochilus simulans* and *Oligochaetochilus bracteatus* grow in clumps and have larger rosettes. *Oligochaetochilus limbatus* is also similar in size to the local form of *Oligochaetochilus boormanii* but that species is not striped and has very hairy lateral sepal margins, often with the galea hairy as well. *Oligochaetochilus excelsus*, which is absent from the Flinders Ranges, is a much taller, later-flowered species without prominent stripes.

Notes: *Oligochaetochilus limbatus* does not fit clearly in any of the *Oligochaetochilus* Sections of Jones & Clements (2002).

Conservation status: Becoming rare due to more than a hundred years of grazing over most of its range, decreased rainfall, increasing weed cover and surviving because its tubers are often buried under a protective hard shale surface.

Etymology: The Latin *limbatus*, with a margin or edge, bordered with a different colour, in reference to the prominent dark-coloured thickened margins of the synsepalum.

Other collections: None found.



Oligochaetochilus limbatus - Sacred Canyon *(Ed Lowrey)*

Oligochaetochilus limbatus rosette of leaves with initiated flower stem, Arkaroo Rock *(R. Bates)*

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3. *Oligochaetochilus terminalis* D.L. Jones & R.J. Bates, ***sp. nov.*** With affinity to *Oligochaetochilus bisetus* (Blackmore & Clemesha) Szlach. but differing by its taller habit, lanceolate rosette leaves with an acute apex, very narrow base to synsepalum which features inverted wine glass markings and has dense cilia on proximal margins, labellum thick textured, narrowly ovate, (compared to the broadly ovate almost paper-thin labellum of *O. bisetus*), the lamina with a deep median groove, the distal margins with numerous, forward-projecting setae of varying lengths, the terminal cluster shorter; petals with dark margins; plants drying red.

TYPE: South Australia, Northern Flinders Ranges, Glass Gorge via Moolooloo, 20 Oct 2013, on rock outcrop in patches of heavy clay soils, *R.J. Bates 94577* (holo AD).

Illustrations: none seen.

Description: Terrestrial dryland orchid to 40 cm tall, occurring as isolated plants or in loose groups. *Tubers* subglobose, to 30 mm diam. *Leaves* sessile, 7-11 in a radical rosette, loosely imbricate, withered at anthesis; *lamina* lanceolate 5-20 mm long, 4-9 mm wide, emerald green, margins minutely siliceous, apex acute. *Scape* 20-40 cm tall, c. 2 mm wide, one- to five-flowered. *Sterile bracts* two, tightly sheathing, lanceolate, 25-30 mm long, apex acuminate. *Floral bracts* lanceolate, 20-30 mm long, 7-10 mm wide, veins reticulate, apex shortly acuminate. *Pedicels* straight, 20-30 mm long, 0.5 mm wide, green or pink. *Ovaries* narrowly obovoid, 3-6 mm long, c. 1 mm wide, green or pink. *Flowers* porrect; *galea* translucent white with prominent green lines and bands when first open, these becoming pink with age; *lateral sepals* white with relatively broad green bands that become rosy-pink with age; *petals* translucent with thin green veins. *Galea* glabrous, shallowly curved and gibbous at the base, nearly flat medially, decurved to the apex. *Dorsal sepal* c. 20 mm long, 8 mm wide, cucullate, distal point filiform, 5-7 mm long, porrect to upcurved. *Lateral sepals* deflexed, not reflexed back towards the ovary; conjoined part wider than the galea, shallowly concave, elliptic, 7-10 mm long, 5-7 mm wide, with inverted wine-glass shaped markings; margins thickened, flat or slightly incurved, with numerous needle-like siliceous cells at different angles and lengths; sinus narrow, less than 45°; free points deflexed, 20-30 mm long, green (sometimes pink with age), divergent, c. 10 mm apart at the tips. *Petals* asymmetrical, ovate-lanceolate, 8-12 mm long, 3-4 mm wide, proximally gibbous, falcate; dorsal margin thickened, brown, with short trichomes; anterior margins curved, glabrous; proximal flange well developed, green. *Labellum* highly irritable on a green claw c. 2 mm long, 1 mm wide. *Lamina* ovate-elliptic, 6-8 mm long, 2-3 mm wide, green to pinkish, thick-textured, a deep central groove running most of the length of the lamina, bordered on each side by a raised mounded ridge, an eye-like mound near the base of each ridge with a projecting bristle (sometimes two) to 2 mm long, strongly constricted at its junction with the basal lobe; *basal lobe* as wide and as thick as the lamina, crescentic, mostly glabrous, with pale thickenings either side; *apex* thin-textured, upturned with a vague median ridge, obtuse, with a terminal cluster of shorter upturned bristles. *Labellum marginal setae* 8-10 pairs, the longest to 1.5 mm long, directed forwards and down. *Column* porrect from end of ovary, recurved, 14-16 mm long, c. 2 mm wide; *Column wings* oblong, c. 4.5 mm long, 2 mm wide; upper lobe vestigial; basal lobe ovate, ciliate; *barrier trichomes* irregularly moniliform, exserted; *Anther* c. 2 mm long, obtuse. *Pollinia* oblong, c. 2 mm long, yellow mealy. *Stigma* narrowly elongate-elliptical, 8-9 mm long, c. 2 mm wide. *Capsules* ellipsoid, 8-10 mm long, 3-4 mm wide, turning red with age (as with the remainder of plant when dried).

Distribution and ecology: Endemic in South Australia where restricted to higher parts of the Northern Flinders Ranges (300 - 800 metres altitude), between Rawnsley Bluff in the south and Arkaroola in the far north, growing under mallee and native pines on rocky slopes. Flowering: October and November.

Recognition: Characterised by the comparatively large, translucent white flowers which are adorned with prominent green bands and lines in the first few days after opening, these marks changing colour to reddish-brown or pink and finally red when dry. It is further characterised by the narrow base to the synsepalum, with its bristled shoulders, inverted wine glass markings on the synsepalum, the deeply grooved, thick-textured labellum lamina (compared to *Oligochaetochilus bisetus* which is much thinner, often paper-thin) and by the notable cluster of terminal setae on the labellum. The lanceolate rosette leaves with an acute apex and the robust habit with tall scapes are also distinctive.

Similar species: *Oligochaetochilus terminalis* is part of the *Oligochaetochilus bisetus* complex which is well-developed in south-eastern Australia. The epithet '*bisetus*' refers to the prominent pair of long projecting labellum setae, each seta arising from a mound on the labellum base. *Oligochaetochilus bisetus* itself was first described in 1968 as *Pterostylis biseta* by John Blackmore & Stephen Clemesha in *The Orchadian* 2 (12): page 150 with an illustration opposite showing a short plant (10-25 cm tall) with an oblong labellum 5-6 mm long (ovate-elliptic and 6-8 mm long in *Oligochaetochilus terminalis*), short lateral sepals (long in *Oligochaetochilus terminalis*) and a relatively wide base on the synsepalum (markedly narrow base in *Oligochaetochilus terminalis*).

Oligochaetochilus terminalis - rosette of leaves with inflorescence just showing, Mooloolo (*R. Bates*)

Oligochaetochilus terminalis - southern form from Wilpena (*R. Bates*)

The extensive northern distribution of *Oligochaetochilus terminalis* contrasts to the southern, often restricted distribution of related taxa in the '*bisetus* complex'. *Oligochaetochilus psammophilus* D.L.Jones is a short, early flowering South Australian species of the '*bisetus*' group with flowers of a different shape, growing some 500 km south of *Oligochaetochilus terminalis* in the Barossa Valley in white sand around mallee/broombush association. Since 1990, seven segregate taxa have been recognised in the *Oligochaetochilus bisetus* complex (several originally described in *Pterostylis*), namely *Oligochaetochilus maximus* (1989, Victoria), *Oligochaetochilus planulatus* (1991, Victoria, South Australia), *Oligochaetochilus cheraphilus* (1993, Victoria, possibly South Australia), *Oligochaetochilus commutatus* (1994, Tasmania), *Oligochaetochilus psammophilus* (1995, South Australia), *Oligochaetochilus petrosus* (1998, New South Wales) and *Oligochaetochilus pedinus* (2009, New South Wales).

Notes: An odd feature of many populations of *Oligochaetochilus terminalis* is the presence of duplicate setae from each basal swelling on the labellum (unlike the single seta from each swelling in *Oligochaetochilus bisetus*). *Oligochaetochilus terminalis* belongs in *Oligochaetochilus* Section *Biseta D.L. Jones & M.A. Clements (Jones & Clements 2002).*

Conservation status: Locally common but declining and becoming less common across its range due to grazing by sheep and feral goats.

Etymology: The Latin *terminalis*, terminal, the end, the apex, referring both to its distribution at the far northern end of the range of the complex and also drawing attention to the terminal cluster of setae on the labellum.

Other collection seen: South Australia, North Flinders Ranges, east flanks of Wilpena Pound, rocky slopes in rich soil pockets, 16 Oct 2015, *R.J. Bates 98162* (CANB).

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Two New Species of *Diuris* from Winter-wet Flats in the South-east of South Australia and South-western Victoria

by David L. Jones and Robert J. Bates

Abstract

Diuris inundata and *Diuris leopardina*, both from winter-wet habitats in the lower south-east of South Australia and adjacent parts of south-western Victoria are described here as new. Notes are provided on their distribution, ecology, conservation status and their distinguishing features are compared with those of allied taxa.

Key Words

Orchidaceae, Diuris inundata, Diuris leopardina, new species, South Australia, Victoria, Australian flora.

Taxonomy

1. ***Diuris inundata*** D.L Jones & R.J.Bates ***sp. nov.*** With affinity to *Diuris chryseopsis* D.L.Jones but differing by its smaller, paler, lemon yellow flowers, blunt dorsal sepal, narrowly ovate to narrowly elliptic petal laminae, pale greenish-white, paper-thin lateral sepals, triangular or cuneate labellum midlobe, tiny lateral lobes with red-edged erose margins and labellum callus of two divergent, outcurved, densely papillate ridges which are coalescent at the base.

TYPE: South Australia. Lower Southeast; Penola, 4 Oct. 2005, *C. & M. Houston 47* (holo CANB 673058, ?iso AD).

Illustration: Page 599, R.J. Bates, South Australia's Native Orchids (2011), as *Diuris* sp. Red-gum waterholes *(M. Houston 69)*.

Description: Tuberous terrestrial *herb* growing in clumps or singly. *Tubers* ovoid, 10-20 mm long, 7-14 mm wide. *Leaves* basal, 3-6 in a loose tuft, erect, 60-100 mm long, 2-6 mm wide, linear, conduplicate, pale green throughout, base sheathing, apex acute. *Scape* 100-350 mm tall, slender, green, 1-2(-3)-flowered. *Sterile bracts* 1 or 2, closely sheathing, lanceolate, 30-35 mm long, 5-7 mm wide, acuminate. *Fertile bracts* closely sheathing, lanceolate, 20-30 mm long, 3-4 mm wide, acuminate. *Pedicels* 20-30 mm long, c 1.5 mm wide, somewhat flattened in cross section. *Ovaries* obovoid, 6- 10 mm long, 2-4 mm wide, green with dark purplish markings. *Flowers* porrect, 15-25 mm across, pale lemon to buttercup yellow yellow with a few rusty red specks; lateral sepals pale greenish white, paper thin. *Dorsal sepal* porrect in the proximal third then obliquely erect, ovate, 10-12 mm long, 5-8 mm wide, apex obtuse. *Lateral sepals* obliquely deflexed, linear-lanceolate, 15-20 mm long, 2-4 mm wide, divergent, margins involute, apex subacute. *Petals* spreading horizontally; *lamina* narrowly ovate to narrowly elliptic, 10-15 mm long, 4-7 mm wide, *apex* obtuse, mucronulate; claw c. 2 mm long, yellow, sometimes striated with purple, widest near the apex, tapered to the base. *Labellum* obliquely decurved, 13-18 mm long, deeply 3-lobed; *lateral lobes* tiny, triangular, 2 mm long, c 1.5 mm wide, edged with red, divergent, at right angles to midlobe and well separated from it, outer margins erose, papillate; midlobe triangular, broadest and flattest at the base, 10-20 mm long, c. 15 mm wide, flat except for a median ridge, margins slightly undulate, apex obtuse, often mucronulate. *Labellum callus* consisting of two divergent, outcurved, densely papillate ridges on the basal part of the midlobe, coalescent at the base, extending as a shallow median longitudinal ridge to the labellum apex. *Column* porrect from the end of the ovary, 3-4 mm long, c. 3 mm wide. *Column wings* oblong, c. 4 mm long, c. 1.4 mm wide. *Anther* ovate, c. 2 mm long, 2 mm wide, purplish-brown. *Pollinarium* c. 2.5 mm long, c. 2 mm wide; *viscidium* elliptic, c. 1 mm wide; *pollinia* clavate, 2 mm long, white, mealy. *Stigma* cordate, c. 3 mm long, 2.5 mm wide. *Capsules* obovoid, 15-16 mm long, 4-6 mm wide, green with purple-black ribs.

Illustration: Bates (2008-2014), Orchids of SA, versions 5-8, as *Diuris* sp. Red-gum waterholes, (*Mal. Houston 69*); also a painting by orchid artist Kath Alcock as *Diuris chryseopsis*.

Distribution and ecology: South Australia where known from the South-East region and adjacent areas in far south-western Victoria. Grows in winter wet River Red Gum (*Eucalyptus camaldulensis*) forest among sedges and shrubs in seasonally damp to wet blackish sandy loam or clay sites around waterholes and on grassy/herbaceous flats with other semi-aquatic orchids such as *Hydrorchis, Microtidium, Prasophyllum* sp. 'Waterholes' and *Thelymitra lucida*. Alt. 50-150 m.

***Diuris inundatus* - flower showing flattened pedicel, Topperwein SA (Ken Bayley)**

Phenology: This species flowers as its habitat dries out, as early as September or as late as November after spring rains.

Recognition: *Diuris inundata* is characterised by its one to three relatively small pale lemon-yellow to buttercup-yellow flowers, blunt dorsal sepal, narrowly ovate to narrowly elliptic petal laminae, pale greenish-white, paper-thin lateral sepals, triangular or cuneate labellum midlobe, tiny triangular lateral lobes with red-edged erose margins and labellum callus of two divergent, outcurved, densely papillate ridges which are coalescent at the base.

Similar species: *Diuris chryseopsis* has larger deeper yellow flowers with dark striae on the base of the dorsal sepal, labellum and lateral sepals, larger ovate dorsal sepal tapering to a narrow blunt point, longer ovate-lanceolate petal laminae that taper to an extended blunt point, thick-textured dark green lateral sepals, broadly ovate labellum midlobe, larger oblong lateral lobes with lobed tips and labellum callus of two thick, outcurved, densely papillate parallel ridges which remain separate at the base. *Diuris monticola* D.L.Jones from montane and subalpine areas is similar but flowers later and has broadly ovate to nearly round petal laminae.

Conservation status: Rare and restricted due to massive destruction of the once vast River Red Gum flats and waterholes which so delighted the early settlers but which they soon destroyed. Recent acceleration of climate drying is also having an impact.

Etymology: The Latin *inundatus*, growing within the reach of floods, inundated, overflowed, referring to the flooded habitat preferred by the species.

Collections seen at AD: SA, all from lower Southeast. Penola , 4 Oct. 2004, *Mal Houston 49*; Topperwein Native Forest Reserve, SE corner, 13 Oct. 2011, *P.J. Lang* 2778; The Lorimer, Bool Lagoon, 1961, *D. Hunt s.n.*, AD 9821049; Mount Gambier, no date, *H Goldsack* 400; Nangwarry Native Forest Reserve, 28 Sep. 2011, *J.Niejalke BS 739-472*; *ibid*, 27 Oct. 2016, *J.Niejalke BS739-2158*.

Diuris inundatus **- showing the distinctive red markings on flower, Penola SA** ***(Barb Bayley)***

Diuris inundatus **- from Penola Conservation Park SA** ***(June Niejalke)***

Diuris inundatus **- leaves Nangwarry SA** ***(R. Bates)***

2. *Diuris leopardina* D.L Jones & R.J.Bates ***sp. nov.*** With affinity to *Diuris pardina* Lindl. but differing by its later flowering time (late September to November *cf.* August to early October in *D. pardina*), more robust habit with taller flower stems, fewer (1-4) porrect to semi-nodding flowers (up to 10 obliquely erect flowers in *D. pardina*) which are pale yellow to butter yellow with numerous red-brown or purple marks and patterns (brighter yellow and heavily marked with dark red-brown in *D. pardina*) and the labellum midlobe is gibbous compared to the folded midlobe of *D. pardina*.

TYPE: South Australia, Lower Southeast region, Penola to Duradong Road, 1963 *D. Hunt s.n.* (holo AD 98620164).

Illustration: *Orchids of South Australia* (Bates 2008-2014) as *Diuris* sp. Short tailed southern form; also page 616, R.J. Bates, *South Australia's Native Orchids* (2011) as *Diuris* sp. Short tailed Penola CP. A similar form illustrated in *Orchids of Victoria* (Jeanes & Backhouse 2006) as *Diuris* sp. aff *pardina* 'Short tailed Leopard orchid' is likely to be the same taxon.

Description: Tuberous terrestrial *herb* growing singly. Leaves 2-3, obliquely erect, linear, grass-like, each of a different length, 30-150 mm long, green with a red base, apex subacute. *Scape* 100-300 mm tall (rarely -400 mm), 1-2 mm diam., green with purple markings, sometimes glaucous, 1-5-flowered. *Sterile bracts* 1 or 2, variably sheathing, lanceolate, 5-20 mm long, 3-4 mm wide, acute to acuminate. *Fertile bracts* loose, purplish, glaucous, falcate-lanceolate, 10-30 mm long, 4-5 mm wide, acute. *Pedicels* slender, 10-15 mm long, green, partly enclosed in the floral bract, free part decurved. *Ovaries* obovoid, 5-6 mm long, c. 3 mm wide, green with purple ribs or suffusions. *Flowers* porrect at first then nodding, 15-25 mm diam., pale yellow to butter yellow with numerous red-brown or purple marks and patterns, often pansy-like, exterior surfaces suffusely speckled, lateral sepals purple-brown with green edges. *Dorsal sepal* porrect in the proximal half then obliquely erect, oblong-ovate, 10-15 mm long, 10-12 mm wide, yellow with a pair of conjoined purple brown eye-like patches at the base of the distal half, minor brown specks around the margins, apex obtuse to acute. *Lateral sepals* linear-oblong, curved, 10-15 mm long, c. 2 mm wide, widest near the apex, usually strongly crossed, apex mucronate.

***Diuris leopardina* - Naracoorte SA (R. Bates)**

***Diuris leopardina* - showing the leopard-like spots, Nangwarry SA (June Niejalke)**

Petals obliquely erect, divergent; lamina broadly ovate to orbicular, 10-14 mm long, 8-12 mm wide, butter yellow and glossy on anterior surface, much speckled and spotted with red brown on the exterior surface, apex recurved, obtuse, mucronate; claw 7-10 mm long, widest at apex, tapering to base, dark purple, this colour extending as a crown like pattern onto the lamina. *Labellum* decurved, deeply 3-lobed, 7-11 mm long; *lateral lobes* crescentic, widely divergent, 2-4 mm long, 1-2 mm wide, yellow, appressed to the dorsal sepal, *apex* acute with a red spot; midlobe oblong when flattened, 7-11 mm long, 5-7 mm wide, yellow, gibbous in the distal half with a pair of decorative comma-shaped, red-brown markings, margins entire decurved, apex retuse to truncate, decurved, yellow-edged. *Labellum callus* consisting of two purplish ridges with a diamond-shaped median longitudinal pit. *Column* porrect from end of ovary, 3-5 mm long, 2-3 mm wide; *column wings* oblong, c. 3 mm long, purplish. *Pollinarium* c. 2.5 mm long, c. 2 mm wide; *viscidium* elliptic c. 1 mm long; *pollinia* clavate 2 mm long. *Stigma* cordate, c. 3 mm long, c. 2.3 mm wide. *Capsules* not seen.

Distribution and ecology: Restricted to the plains in the South-east region of South Australia and adjacent parts of south-western Victoria growing in open forest with mixed eucalypts and blackwoods amongst sparse shrubs, grasses, herbs and sedges on winter-wet flats in sand over clay. Alt. 50-150 m.

Phenology: Flowers late September to November, much later than the hill-loving *Diuris pardina*.

Recognition: This species is characterised by its tall habit, 1-4 large pale yellow to butter yellow flowers with numerous red-brown or purple markings, the flowers porrect at opening and then nodding, the presence of a pair of very dark triangular

patches on the dorsal sepal, short, thick-textured lateral sepals that often cross and a decurved labellum midlobe. The suffuse spotting or speckling patterns on the exterior surface of petals and dorsal sepals contrasts markedly with the anterior surface.

Similar species: The new species has many similarities with *Diuris pardina* which flowers earlier (August to October), is shorter growing with up to 10 flowers which tend to be held obliquely erect and are much more heavily marked with dark red-brown, especially on the exterior surfaces. It also differs from the shorter growing *Diuris calcicola* which has smaller (10-15 mm across) brightly coloured flowers which are much less heavily marked with red-brown.

Notes: This species has been treated as a separate taxon from *Diuris pardina* and referred to as '*Diuris* species short tailed' (Bates 2011-2016). It has also been incorrectly determined as *Diuris brevissima* since Bates & Weber (1990). The new species does not extending to mountains or coastal areas. It sometimes grows with *Diuris behrii* or *Diuris inundata* but rarely forms hybrids.

Conservation status: Although quite common as recently as the 1960's, massive land clearing, overgrazing and falling water tables have seen the species become rare and endangered this century.

Etymology: The Latin *leopardinus*, marked like a leopard, in reference to the numerous spots on the posterior surface of the dorsal sepal and petals and the two large dark patches on the dorsal sepal.

Selected Collections at AD, all from lower Southeast (from 15 seen). Bool Lagoon. 1962, *D. Hunt s.n.*; Penola-Duradong Rd, 27 Sept. 1964, *D. Hunt* 2151; E of Penola Pine Forest, 18 Oct. 1964, *D Hunt* 2194; Naracoorte to Frances Rd, Oct 1998, *R.J. Bates* 45666.

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Diuris leopardina **- flowers: front and side views** ***(June Niejalke)***

Three New Species of Orchidaceae from Victoria

by David L. Jones

Abstract

Diplodium nichollsianum, *Prasophyllum rousei* and *Prasophyllum sylvicola* are described here as new and compared with allied taxa.

Key Words

Orchidaceae, *Diplodium nichollsianum*, *Prasophyllum rousei*, *Prasophyllum sylvicola*, new species, Victoria, Australian flora.

Introduction

The three new species of orchid described here have links to my earliest contacts with orchids in Victoria and it gives me a great deal of satisfaction to describe them formally as new species nearly half a century later.

Taxonomy

1. ***Diplodium nichollsianum*** D.L.Jones ***sp. nov.*** With affinity to *Diplodium striatum* (Fitzg.) D.L.Jones & M.A.Clem. but differing by its scabrid ovaries, larger flowers (24-28 mm long *cf.* 19-22 mm long in *D. striatum*), large dorsal sepal with a long apical point (5-8 mm long *cf.* 3-4 mm long in *D. striatum*), broad sinus (narrow in *D. striatum*), and a relatively large thick labellum (11.5-13 mm x 2.2-2.6 mm *cf.* 8-9 mm x 2-2.3 mm in *D. striatum*).

TYPE: Victoria. Greensborough, hill not far from town centre, 21 May 1966, *D.L.Jones s.n & B.E.Mentiplay* (holo CANB 617513).

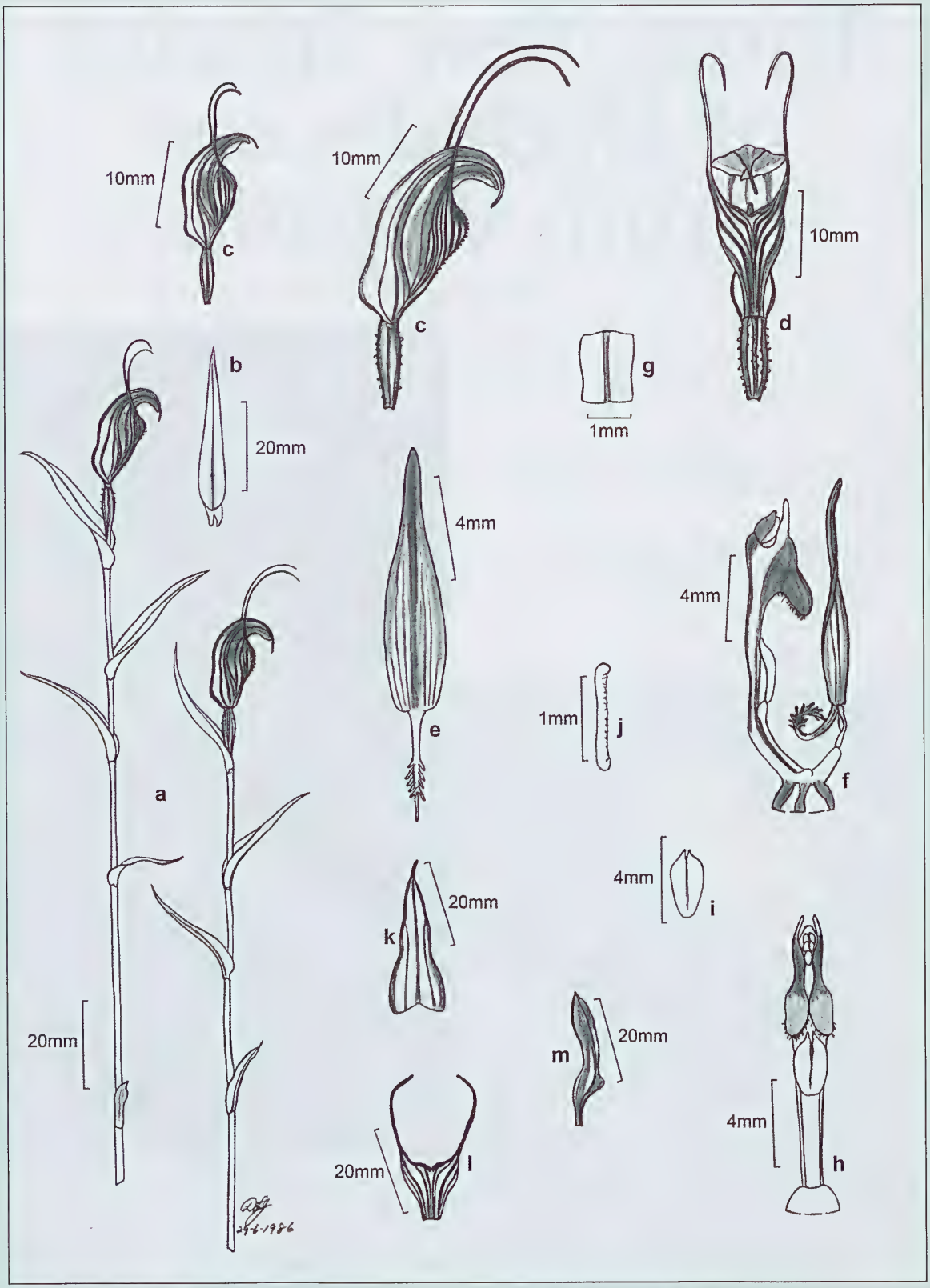
Pterostylis reflexa R.Br. var. *intermedia* Ewart, *Proc. Roy. Soc. Victoria* (new ser.) 20(1): 84-85 (1907).

TYPE: Victoria. Mentone, June 1907, *J.R.Tovey and C.French s.n.* (lecto MEL!, isolecto NSW?), *fide* Clements (1989).

Illustration: Figs b & c, plate 311, Nicholls (1969).

Description: Tuberous terrestrial *herb* growing in clonal colonies. *Rosette* separate; leaves 5-8, dark green; *lamina* ovate to broadly ovate, 5-14 mm long, 4-11 mm wide, margins entire or crinkled, apex mucronate; petioles 3-12 mm long, very slender, not winged. *Scape* 12-20 cm tall, slender, smooth. *Cauline leaves* 3-5, dark green, obliquely erect to spreading; *lamina* narrowly ovate-lanceolate, 16-40 mm long, 4-8 mm wide, sheathing at the base, entire, acuminate. *Ovary* narrowly obovoid, 8-12 mm long, greenish-brown, scabrid. *Flower* solitary (rarely 2), 24-28 mm long, erect, translucent white with bold green and brown stripes, these coalescent and mainly brown towards the galea apex; galea gibbous at the base then erect before bending forwards in a graceful curve, apex decurved. *Dorsal sepal* 32-36 mm long, 10-13 mm wide, slightly inflated at the base, then tapered gradually, ending in a linear-filiform point 5-8 mm long. *Lateral sepals* erect, tightly embracing the galea, leaving a very narrow lateral gap; sinus prominently bulged when viewed from the side, shallowly V-shaped with a central notch when viewed from the front; conjoined part white with dark green and brown stripes and suffusions, 11-13 mm long, 11-13 mm wide, narrowed to c. 4 mm wide at the base, the upper margins involute, suddenly tapered into the free points; free points filiform, 20-25 mm long, erect, held high above the galea, parallel. *Petals* obliquely oblong-lanceolate, falcate, 30-33 mm long, 4.5-5 mm wide, slightly constricted near the middle, subacute, central part white, anterior margins greenish brown, apex reddish; flange 2-2.5 mm wide, more or less bluntly deltate. *Labellum* attached to a basal claw c. 2 mm long, erect, mostly straight, shallowly curved forwards distally, the tip just visible above the front of the sinus in the set position, white striped with brown in the proximal half, dark brown to blackish in the distal half; lamina oblong-elliptical, 11.5-13 mm

Diplodium nichollsianum - Diamond Creek, Victoria



***Diplodium nichollsianum*, Diamond Creek, Vic, *R.Datodi*. (Fig. 1.)**

a. flowering plants; b. cauline leaf; c. flowers from side; d. flower from front; e. labellum; f. column and labellum from side; g. labellum hinge; h. column from front; i. stigma; j. pollinium; k. dorsal sepal; l. synsepalum; m. petal.

© D.L.Jones, drawn 29 June 1986.

long, 2.2-2.6 mm wide, broadest in the proximal two-thirds then suddenly tapered to a drawn-out apex, subacute; basal appendage linear, c. 2.5 mm long, incurved, apex penicillate; callus dark brown, c. 0.4 mm wide, slightly raised, expanded distally to c. 0.8 mm wide. *Column* dark green to brown, 11.5-13 mm long, angled away from the ovary at about 50° then erect. *Column wings* c. 4 mm long; basal lobe at an angle of about 40°, c. 1.8 mm long, c. 1.8 mm wide, inner margins incurved, adorned with short white cilia, apex obtuse; mid-section red brown to brown, c. 2.2 mm long; apical lobe linear-tapered, c. 2 mm long. *Anther* c. 1.6 mm long, shortly rostrate. *Pollinia* linear, 1.2-1.3 mm long, yellow, mealy. *Stigma* scutiform, c. 3 mm long, c. 2 mm wide, raised. *Capsules* obovoid, 12-14 mm long, 4-6 mm wide, greyish brown, scabrid. **Fig. 1.**

Distribution and ecology: Endemic in Victoria where once apparently fairly widespread around Melbourne including areas in the north-east, east and the sand belt to the south, but now restricted to suburbs to the north-east of Melbourne between Greensborough and Hurstbridge, including Diamond Creek, Wattle Glen and St Andrews. Grows on ridges and sheltered slopes in open forest dominated by *Eucalyptus polyanthemos*, *E. obliqua* and *E. goniocalyx* with an understorey of scattered shrubs and tussocks. The soil is mainly shallow grey clay loam over shale; tertiary sands in the coastal belt. Altitudes range from 50-160 m. Flowering: May to July.

Recognition: Slender autumn/winter-flowered greenhood with scabrid ovaries, relatively large striped flowers (24-28 mm long); large dorsal sepal with a distinct apical point (5-8 mm long); broad, shallowly V-shaped sinus with a central notch; parallel free points on the lateral sepals; and a relatively large (11.5-13 mm x 2.2-2.6 mm) labellum which just extends above the sinus in the set position.

Similar species: Similar in general appearance to *Diplodium striatum* but larger in all aspects. *Diplodium striatum* has smaller flowers (19-22 mm long), short apical point on the dorsal sepal (3-4 mm long), narrower sinus and a relatively small (8-9 mm x 2-2.3 mm), thin labellum. *Diplodium nichollsianum* has also been linked with *Diplodium alatum* (e.g. Nicholls 1969) which is endemic in Tasmania and has smaller, narrower flowers with a deeply notched sinus and the labellum protrudes significantly from the galea in the set position (Jones 1998). Geographically the species is nearest to *Diplodium striatum* which is widely distributed in Victoria and extends north to the vicinity of Cadia on the Central Western Slopes of New South Wales.

Diplodium nichollsianum – Part of Plate 311 in Nicholls *Orchids of Australia* as *Pterostylis alata*

Typification: Clements (1989) wrongly included *Pterostylis reflexa* var. *intermedia* Ewart as a synonym of *P. alata*. Ewart apparently applied the epithet intermedia because the taxon has intermediate features between *P. reflexa* and *P. striata* (then known as *P. praecox* Lindl.). Certainly its flowers are larger than the latter species but the taxon has no close relationships with *P. reflexa*. Clements (1989) selected a lectotype for the taxon and a collection in NSW (226932) is possibly an isolectotype.

Diplodium nichollsianum - Diamond Creek, Victoria

Conservation status: Of restricted distribution, severely impacted by intensive urban spread and apparently not conserved; suggest 2V or 2E according to the criteria of Briggs & Leigh (1996).

Etymology: Named after William Henry Nicholls (1885-1951), bushwalker, enthusiastic orchidologist, photographer, accomplished botanical artist and botanical author who named or was involved in the nomenclature of more than 120 species of Australian orchids. Nicholls' superb orchid paintings were compiled in a single volume published in 1969 as *The Complete Edition of Orchids of Australia*. My involvement, as co-editor with Bruce Muir, on this manuscript was a formative moment that inspired my botanical career. Nicholls also collected and painted this species (plate 311).

Additional specimens examined: VICTORIA: Eastern Highlands. Dandenong, June 1924, *W.H.Nicholls* (NSW); Greensborough, 18 May 1929, *W.H.Nicholls* (NSW); Mordialloc, July-Aug. 1896, *C.Walter* (NSW); Hurstbridge, 21 May 1966, *D.L.Jones & B.E.Mentiplay*, (CANB 617515); Hurstbridge towards Diamond Creek, 21 May 1966, *D.L.Jones & B.E.Mentiplay*, (CANB 617516); near St Andrews, 21 May 1966, *D.L.Jones & B.E.Mentiplay*, (CANB 617517); cultivated ex Diamond Creek, 17 June 1994, *H.Richards* (CANB); Wattle Glen, 24 July 1986, *H.Richards 131* (CANB); Diamond Creek, 29 June 1986, *R.Datodi* (CANB); Ironbark Rd, Diamond Creek, 12 June 2000, *D.Rouse (ORG 3048)* (CANB).

2. *Prasophyllum rousei* D.L.Jones, ***sp. nov.*** With affinity to *Prasophyllum odoratum* R.S.Rogers but differing by its parallel lateral sepals, much broader ovate-lanceolate labellum, obovate-spathulate petals and short ovate labellum callus with a notched apex.

TYPE: Victoria. Wyperfield National Park, Wonga Hut section, 31 Oct. 2001, *D.Rouse 70* (holo CANB; iso AD, MEL, NSW).

Illustrations: Plates 6a-b (Rouse 2002) - as *Prasophyllum* sp. aff. *odoratum* B.

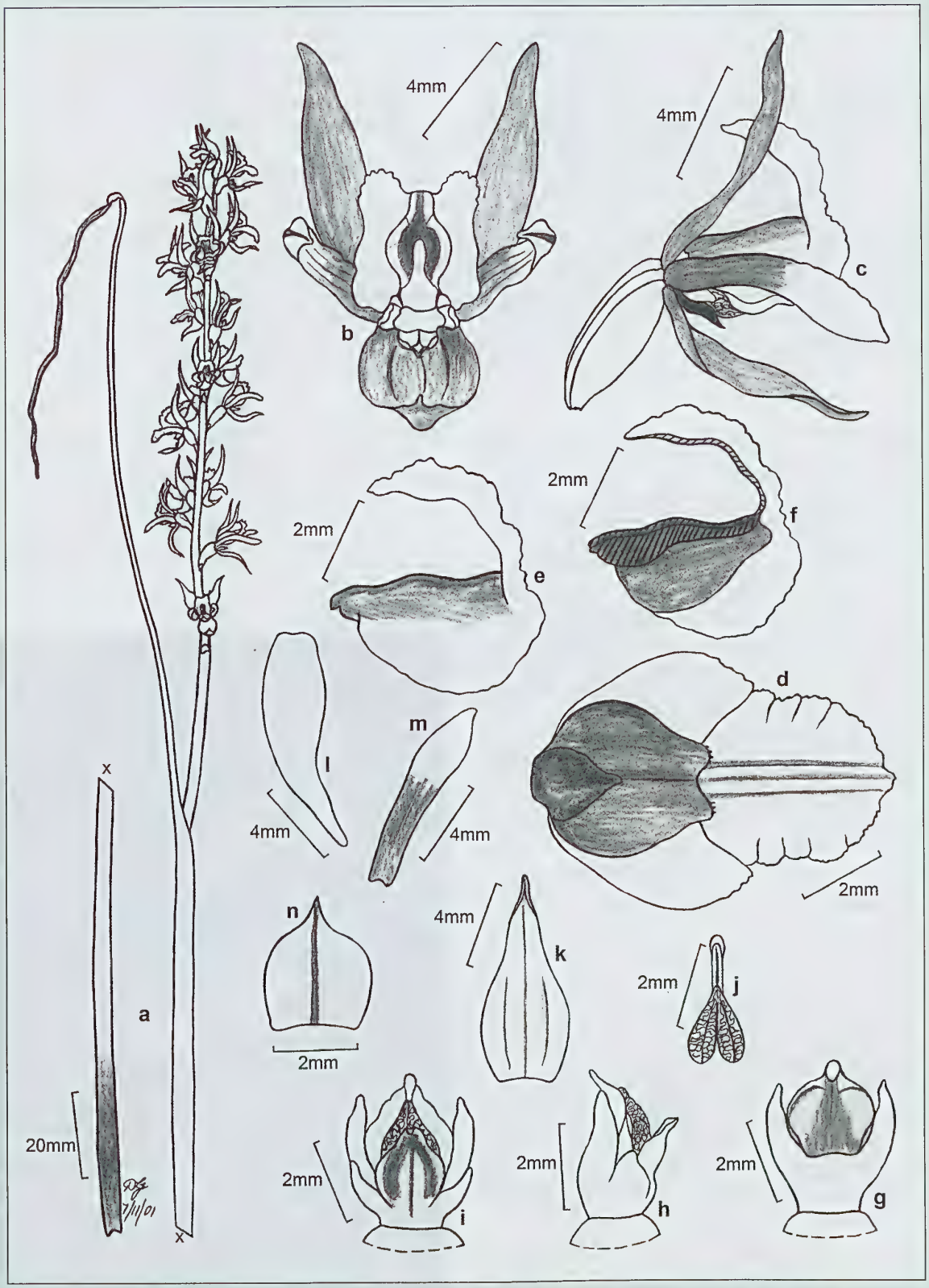
Description: Tuberous terrestrial *herb* to 600 mm tall, growing singly. Tubers not seen. *Leaf* terete, 20-35 cm long, 2-4 mm wide, pale green to dark green, shiny; base c. 2-3 mm diam., purplish; free lamina erect, 12-32 cm long, usually distally withered at anthesis. *Inflorescence* a moderately dense spike 5-12 cm long, consisting of c. 8-35 flowers. *Floral bracts* ovate, 2-3 mm long, c. 2.5 mm wide, closely embracing the ovary; apex acuminate. *Ovaries* at 20-30° to the rachis, obovoid, 5-6 mm long, 2-2.5 mm wide, green, shiny. *Flowers* lemon-scented, sessile to subsessile, 7-10 mm diam., green to greenish bronze with a white labellum. *Dorsal sepal* decurved, ovate-lanceolate, 7-10 mm long, 2.5-3.5 mm wide, with three fine faint nerves; apex acuminate. *Lateral sepals* free, parallel or nearly so, obliquely erect, linear-lanceolate, tips recurved, 8-10 mm long, 1.5-2.2 mm wide, not gibbous, straight to falcate; distal margins flat to slightly involute; apex entire, acuminate. *Petals* porrect to incurved, obovate-spathulate, 6-9.5 mm long, 1.3-2 mm wide, white with a green basal central area; distal margins dilated; apex obtuse. *Labellum* sessile, erect to obliquely erect in the proximal half, recurved at right angles near the middle; apex erect to weakly recurved, occasionally just extending through the lateral sepals; *lamina* broadly ovate-lanceolate when flattened, 7.5-9.5 mm long, 5.5-6 mm wide, white; base not gibbous; proximal margins entire, broadly rounded; distal margins undulate/crispate; apex obtusely apiculate. *Callus* ovate, 4-4.5 mm long, 3-3.5 mm wide, green, with a dark green basal area; apex broadly emarginate. *Column* porrect from the end of the ovary, c. 3.5 mm long, c. 3 mm wide; appendages oblong, c. 3 mm long, c. 0.8 mm wide, nearly straight, white; apex obtuse. *Anther* much shorter than the stigmatic plate, ovate, c. 2 mm long, c. 1.5 mm wide, brownish purple to dark purple. *Pollinarium* c. 3 mm long; *viscidium* ovate-elliptic, c. 0.4 mm long; hamulus broadly ligulate, c. 1 mm long; *pollinia* c. 1.8 mm long, yellow, sectile. *Stigma* quadrate, c. 1.4 mm long, c. 1.8 mm wide, set very high on the column; rostellum higher than the appendages. *Capsules* not seen. **Fig. 2.**

Distribution and ecology: Occurs in the Big Desert of north-western Victoria and adjacent areas of South Australia (Bates 2006-2014) where it has been designated *Prasophyllum* sp. Sandplain. In Victoria it is known only from Wyperfeld National Park where it grows in mallee shrubland on old stabilised dunes in deep white sand. The vegetation is relatively sparse and consists of *Callitris gracilis*, *C. verrucosa*, *Banksia ornata*, *Leptospermum coriaceum*, occasional mallee eucalypts and clumps of *Triodia* sp. Altitude: 70-100 m. Flowering period: Late October and November.

Recognition: Slender inland leek orchid with a moderately dense crowded spike of lemon-scented flowers with free, green to greenish bronze, relatively broad, non-gibbous parallel lateral sepals, decurved dorsal sepal and porrect to incurved oblong petals. It also has a relatively short, very broad white labellum which is not gibbous at the base. The labellum is sharply recurved near the middle with the distal part erect and with prominently undulate/crispate margins. The callus is relatively short and broad with a notched apex.

Prasophyllum rousei - Wyperfeld National Park

Prasophyllum rousei - habitat Wyperfeld National Park



***Prasophyllum rousei*, Wyperfield National Park, Vic. *D. Rouse 70* (part of type).** (Fig. 2.)
a. flowering plant; b. flower from front; c. flower from side; d. labellum from above, flattened; e. labellum from side; f. longitudinal section of labellum; g. column from front; h. column from side; i. column from rear; j. pollinarium; k. dorsal sepal; l. lateral sepal; m. petal; n. floral bract.
© D.L.Jones, drawn 7 November 2001.

Similar species: *Prasophyllum rousei* has affinities with *Prasophyllum odoratum* but that species, which grows in a wetter habitat with reliable rainfall, has widely divergent lateral sepals, a much narrower oblong-elliptic labellum with a strongly recurved apex, linear-tapered petals and a relatively long narrow callus with an entire apex. It also has similarities with *Prasophyllum spicatum*, a coastal and near-coastal species also with spathulate petals, but which has densely crowded flowers in a compact cylindrical spike, shorter broader tepals and divergent lateral sepals.

Notes: I first saw this species flowering in Wyperfield National Park in 1964 on an excursion with Barbara Mentiplay, who later became my wife. At the time I was familiar with a tall-growing member of the *Prasophyllum odoratum* complex that was common in the well-watered forests of the Dandenong Ranges and was amazed to see this similar and obviously related orchid growing in such a starkly contrasting habitat. Although the plants were flowering freely at the time, the leaves were completely shrivelled. The flowers exuded a strong sweet fragrance reminiscent of a citrus scent, much stronger than the fragrance of the plants from the Dandenongs. The late-flowering habit of this species is unusual considering the almost semi-arid habitat where it grows.

Conservation status: Restricted to a highly specialised habitat much of which has been cleared; conserved in Wyperfeld National Park where the population consists of about 150 plants scattered over 3-4 km; suggest 3VC according to Briggs & Leigh (1996).

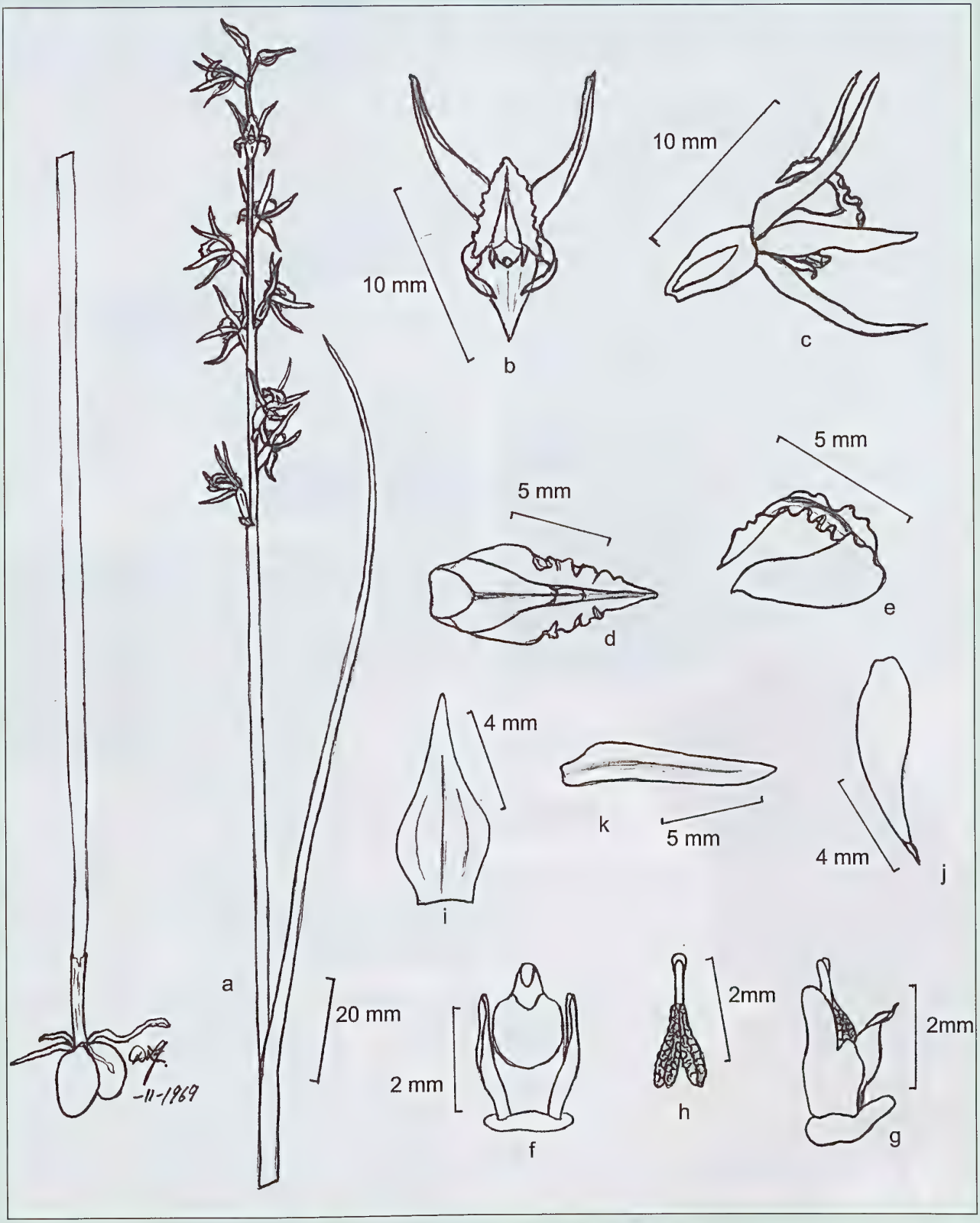
Etymology: Named after Dean Thomas Rouse (1967-), molecular biologist and avid botanical collector who carried out a detailed study of *Prasophyllum* in south-eastern Australia and identified numerous new species in the process.

3. *Prasophyllum sylvicola* D.L.Jones ***sp. nov.*** With affinity to *P. odoratum* R.S. Rogers but differing by its tall slender habit, uncrowded flowers which are mostly green with whitish petals and a white labellum (sepals sometimes greenish brown), narrower sepals, narrower petals and a relatively narrow, sharply recurved labellum with a narrow callus plate extending just beyond the bend in the lamina.

TYPE: Victoria, Chandlers Hill, The Basin, 3 October 1969, *D.L.Jones s.n. & B.E.Jones* (holo CANB 638680).

Description: Slender, glabrous, terrestrial, tuberous *herb* 40-70 cm tall. *Tubers* not seen. *Leaf* terete, 30-50 cm long, dark green; base 2-4 mm across, dark red to purple; free lamina erect to suberect, the tip often withered at anthesis. *Floral bracts* broadly ovate, c. 2.5 mm long, c. 2 mm wide, closely sheathing. *Ovary* obovoid, 6-8 mm long, 2-3 mm wide, green, shiny, at c. 40° to the rachis. *Inflorescence* a loose slender spike 7-13 cm long, consisting of 10-25 flowers. *Flowers* subsessile, 8-12 mm across, opening widely, lemon-scented; tepals green to greenish brown, petals whitish, labellum white. *Dorsal sepal* narrowly ovate-lanceolate, 6.5-8 mm long, 3-4 mm wide, 3-5 darker striae prominent, deflexed, curved forwards; apex subobtuse to subacute. *Lateral sepals* linear-lanceolate, 6.5-8.5 mm long, c. 2 mm wide, erect, curved, very widely divergent; distal margins involute. *Petals* asymmetric, narrowly linear, 9-11 mm long, c. 0.7 mm wide, whitish with a greenish median band, porrect, incurved or spreading, subobtuse. *Labellum* sessile, white; proximal half porrect, sharply recurved back on itself at c. 150° near the middle; distal half arising at a steep angle to the basal portion, curved; *lamina* narrowly ovate-lanceolate in outline when flattened, 10-11.5 mm long, 4.5-5 mm wide; base narrowly cordate, not gibbous when viewed from the side; proximal margins entire; distal margins strongly irregularly crispate/crenulate; apex subobtuse. *Callus* greenish yellow, c. 6 mm long, c. 3.5 mm wide, ovate at the base then attenuate, raised, fleshy, channelled centrally, extending just beyond the bend in the lamina; apex entire or emarginate. *Column* porrect from the end of the ovary, c. 3 mm long, c. 2 mm wide, visible from the side in the gap between the dorsal sepal and the petals; appendages oblong, c. 2.7 mm long, c. 1 mm wide, whitish, obtuse. *Anther* ovate, c. 1.6 mm long, c. 1.3 mm wide, purplish brown, narrower than the stigmatic plate. *Pollinarium* c. 2.5 mm long; *viscidium* ovate, c. 0.15 mm long; *hamulus* ligulate, c. 0.8 mm long; *pollinia* narrowly clavate, c. 1.5 mm long, yellow, sectile. *Stigma* ovate, c. 1.3 mm long, c. 1.3 mm wide; rostellum higher than the appendages. *Capsules* narrowly obovoid, 10-12 mm long, c. 4 mm wide, shiny. **Fig. 3.**

Distribution and ecology: Endemic in Victoria where known from ranges to the east of Melbourne, especially the foothills and main range of the Dandenong Ranges and ranges further east in the Upper Yarra Valley. It was also reported by my relatives to occur in low hilly areas to the immediate west of the Dandenongs including Scoresby, Kilsyth, Boronia and Montrose, areas long since cleared for orchards and later urbanised. It grows in humid open forest dominated by Long-leaf Box (*Eucalyptus goniocalyx*) and stringybarks, especially Messmate (*E. ovata*), with a dense shrubby and tussocky understorey; less commonly in tall wet forest. Soils where this species grows include shallow stony grey loams, moisture-retentive clay loams and deep well-structured brown loam. Altitude: c. 80-600 m. Flowering period: September and October.



***Prasophyllum sylvicola*, The Basin, Vic.** (Fig. 3.)
a. flowering plant; b. flower from front; c. flower from side; d. labellum from above, flattened; e. labellum from side; f. column from front; g. column from side; h. pollinarium; i. dorsal sepal; j. lateral sepal; k. petal.
© D.L.Jones, drawn November 1969.

Recognition: *Prasophyllum sylvicola* is part of the *Prasophyllum odoratum* complex but is distinguished by the tall slender habit, uncrowded flowers which are mostly green with whitish petals and a white labellum (sepals sometimes greenish brown), narrow sepals, narrow petals, widely divergent lateral sepals, petals projecting forwards close to the labellum or incurved and a relatively narrow, sharply recurved labellum with a narrow callus plate extending just beyond the bend in the lamina.

Similar species: *Prasophyllum sylvicola* has affinities with *Prasophyllum odoratum* but that species has crowded flowers that are often more colourful, broader sepals and petals and a relatively long narrow labellum callus extending well beyond the bend in the lamina.

Notes: This species was particularly abundant in the vicinity of The Basin in the lower foothills of the Dandenong Ranges. It was a favourite of my aunt, Ethel McCartin, and such was its abundance in the 1950's that she gathered bunches for indoor decoration when it was flowering. In some areas it flowers in the absence of fire, especially in wet seasons, but flowering is quickly curtailed in dense habitats which regenerate quickly and the species then responds strongly in the season following a summer burn. As a general observation, flowering plants are more robust and abundant in burnt forest rather than unburnt forest. The flowers are sweetly scented but the fragrance is not strong.

Conservation status: Of relatively restricted distribution but often locally common; conserved in the Dandenong Ranges National Park and Upper Yarra Valley National Park.

Etymology: Derived from the Latin, *sylva*, wood, forest, *-cola*, dweller, in reference to the forested habitats where this species grows.

Other specimens: VICTORIA: The Basin, Dandenongs, 12 Nov. 1961, *D.Jones* (CBG 8104407); Dandenong Ranges, near Sassafrass, 22 Oct. 1966, *D.L.Jones & B.E.Mentiplay* (CANB 749461); Mercia Ave, The Basin, Nov. 1969, *D.L.Jones & B.E.Jones* (CANB 749506); Dandenongs National Park, lower slopes below Burkes Lookout, 400 m up Camellia Track from Edgar Track intersection, 13 Nov. 2001, *D.T.Rouse 85* (CANB 634787).

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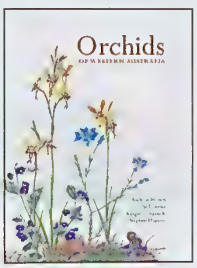

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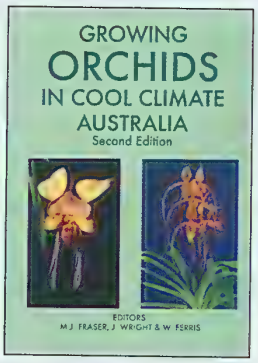

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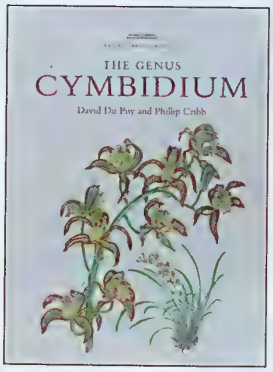

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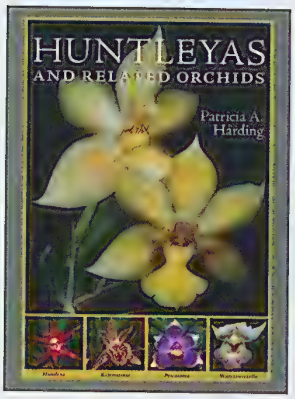

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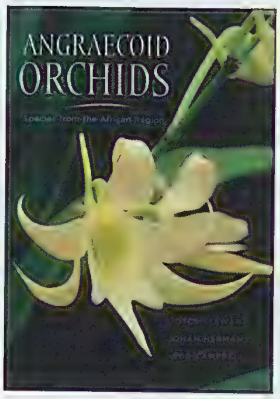

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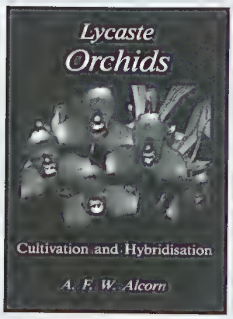

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by A.F.W. Alcorn

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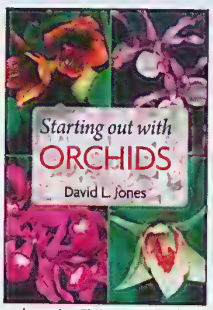

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New combinations in Australian Orchidaceae

by David L. Jones[1] and Mark A. Clements[2]

Some nomenclatural anomalies in the Australian Orchidaceae have been identified from molecular based studies and the following adjustments are necessary to reflect modern taxonomy.

Caladenia* × *intermedia (Fitzg.) M.A.Clem. & D.L.Jones, ***comb. nov.*** Basionym: *Glossodia intermedia* Fitzg., *Gard. Chron.* (new ser.), 17: 462 (1882).

Caladenia isolata (R.J.Bates) D.L.Jones & M.A.Clem., ***comb. & stat. nov.*** Basionym: *Stegostyla transitoria* ssp. *isolata* R.J.Bates, *Australian Orchid Review* 81(4): 44-45, t. (2016).

Caladenia hesperia D.L.Jones & M.A.Clem., ***nom. & stat. nov.*** Basionym: *Arachnorchis conferta* (D.L.Jones) D.L.Jones & M.A.Clem. subsp. *occidentalis* R.J.Bates, *Australian Orchid Review* 81(1): 43-44 (2016).

Diplodium allantoideum (R.S.Rogers) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis allantoidea* R.S.Rogers, *Trans. & Proc. Roy. Soc. South Australia* 64: 139 (1940).

Diplodium brunneolum (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis brunneola* D.L.Jones & C.J.French, *Australian Orchid Review* 79(2): 19-21, f., t, (2014).

Diplodium calignum (M.T.Mathieson) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis caligna* M.T.Mathieson, *Austrobaileya* 9(1): 102-106, f. 1-3 (2013).

Diplodium clavigerum (Fitzg.) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis clavigera* Fitzg., *J. Bot.* 23: 138 (1885).

Diplodium dilatatum (A.S.George) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis dilatata* A.S.George, *Nuytsia* 5(1): 61 (1984).

Diplodium echinulatum (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis echinulata* D.L.Jones & C.J.French, *Australian Orchid Review* 79(6): 41-44, t., f. (2014).

Diplodium erubescens (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis erubescens* D.L.Jones & C.J.French, *Australian Orchid Review* 79(3): 38-41, t., f. (2014).

Diplodium glebosum (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis glebosa* D.L.Jones & C.J.French, *Australian Orchid Review* 79(6): 45-48, t., f. (2014).

Diplodium jacksonii (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis jacksonii* D.L.Jones & C.J.French, *Australian Orchid Review* 79(2): 22-24, t., f. (2014).

Diplodium karri (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis karri* D.L.Jones & C.J.French, *Australian Orchid Review* 79(3): 42-45, t., f. (2014).

Diplodium lortensis (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis lortensis* D.L.Jones & C.J.French, *Australian Orchid Review* 79(2): 25-26, t. f. (2014).

Diplodium microphyllum (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis microphylla* D.L.Jones & C.J.French, *Australian Orchid Review* 79(6): 49-51, t., f. (2014).

Diplodium nanum (R.Br.) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis nana* R.Br., *Prodr.* 327 (1810).

Diplodium pyramidalis (Lindl.) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis pyramidalis* Lindl., in *Edwards Bot. Reg.* 1-23: Swan Riv. App. liii (1840).

Diplodium telmatum (D.L.Jones & C.J.French) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Pterostylis telmata* D.L.Jones & C.J.French, *Australian Orchid Review* 79(3): 46-47, t., f. (2014).

Diplodium timothyi (D.L.Jones) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Linguella timothyi* D.L.Jones, *Austral. Orchid. Res.* 5: 82-83 (21 Dec. 2006).

Dienia acuminata (D.Don) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Malaxis acuminata* D.Don, *Prodr. fl. Nepal*, 29 (1825).

Dienia fimbriata (Lavarack) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Malaxis latifolia* Lavarack, *Austrobaileya* 1(4): 383-4, f. 23b (1981).

Dienia flavovirens (D.L.Jones & M.A.Clem.) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Crepidium flavovirens* D.L.Jones & M.A.Clem., *Novon* 7(4): 376-378, f. 1 (1997).

Dienia fontinalis (D.L.Jones & M.A.Clem.) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Crepidium fontinale* D.L.Jones & M.A.Clem., *Austral. Orch. Res.* 5: 8-9, f. 1.8, t. (2006).

Dienia lawleri (Lavarack & B.Gray) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Malaxis lawleri* Lavarack & B.Gray, *Orchadian* 8(1): 6, f. (1984).

Dienia marsupichila (Upton) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Malaxis marsupichila* Upton, *Orchadian* 5(3): 32, f. (1976).

Dockrillia fasciculata (Rupp) M.A.Clem. & D.L.Jones, ***comb. & stat. nov.*** Basionym: *Dendrobium teretifolium* var. *fasciculatum* Rupp, *Proc. Linn. Soc. New South Wales* 60:157, t.4 (1935).

Oeceoclades pelorica (D.L.Jones & M.A.Clem.) D.L.Jones & M.A.Clem., ***comb. nov.*** Basionym: *Eulophia pelorica* D.L.Jones & M.A.Clem., *Orchadian* 14(8): *Sci. Suppl.* ix (June 2004).

Stigmatodactylus amplexicaulis (F.M.Bailey) S.P.Lyon, M.A.Clem. & D.L.Jones, ***comb. nov.*** Basionym: *Microstylis amplexicaulis* F.M.Bailey, *Bot. Bull. Dep. Agric. Queensland* 3: 18 (1891).

Stigmatodactylus sublestus (Dockr.) S.P.Lyon, M.A.Clem. & D.L.Jones, ***comb. nov.*** Basionym: *Acianthus sublestus* Dockr., *North Queensland Naturalist* 23(110): 3, f. (1956).

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April 8-9 Collector's Plant Fair
– Hawkesbury, NSW
June 9-11 Townsville Orchid Spectacular
– QLD *(see page 32)*
June 24-25 Mingara Orchid Fair and Show
– Mingara, NSW
July 8-9 Tinonee Orchids Workshop, Show and OPEN DAY
– Tinonee, NSW
July 30 Hills District Orchids
– Winter Open Day
– Northmead, NSW
August 5-6 WA Orchid Spectactular
– Perth, WA
August 18-20 St. Ives Orchid Fair
– NSW
August 25-27 Melbourne Orchid Spectacular
– KCC Park, 655 Westernport Highway, Skye, VIC
September 9 Bellingen Plant Fair
– Bellingen, NSW
September 16-17 Port Macquarie Orchid Show
– NSW
September 24 Hills District Orchids
– Spring Open Day
– Northmead, NSW
October 6-8 Southern Orchid Spectacular
– Cronulla, NSW
November 4-5 Tweed District Orchid Fair
– Tweed Heads, NSW
December 3 Hills District Orchids
– Summer Open Day
– Northmead, NSW

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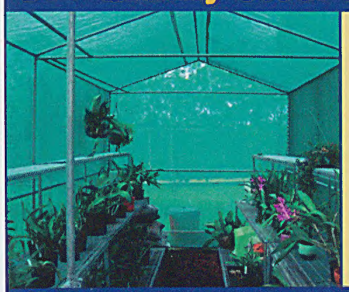

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